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CLAIMS

[Claim(s)]
[Claim 1]A picture display part which has a viewing area which can display a picture, and an image control part which controls a display of said picture, A game machine with which the motion will be interlocked with and said image control part will display a picture on said viewing area if it has a movable body in which a motion which enters in said viewing area at least is possible, and a motion-control part which controls a motion of said movable body and said motion-control part moves said movable body.
[Claim 2]A picture display part which has a viewing area which can display a picture, and an image control part which controls a display of said picture, A game machine to which said image control part changes a picture, and said motion-control part moves said movable body so that it may have a movable body in which a motion which enters in said viewing area at least is possible, and a motion-control part which controls a motion of said movable body and a motion of said movable body and change of a picture may interlock.
[Claim 3]A game machine to which an image control part changes said picture, and/or a motion-control part moves said movable body so that it may be visible in either the movable body or a picture having done a dynamic operation to another side, when a movable body enters in a viewing area in a game machine indicated to Claim 1 or 2.
[Claim 4]An image control part which controls a display of a pattern in a game machine indicated in any 1 clause of 3 from Claim 1, A game machine to which said image control part changes a pattern, and said motion-control part moves said movable body so that it may have a game control part which gives a game person a privilege when a specified pattern is displayed on a picture display part as a result, and a motion of said movable body and change of a pattern may interlock.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the game machine provided with the picture display part and the movable body at least.
[0002]
[Description of the Prior Art]In an image display unit, it is begun to fluctuate a pattern group in the pachinko machine which is one of the game machines, in two or more variable regions, if a pachinko ball wins a prize of predetermined regions (for example, a gate, a start opening, etc.) or it passes, respectively. The upset condition of such a pattern group is called "pattern fluctuation." And a privilege will be given to a game person, if change of a pattern group is suspended and a specified pattern is displayed on an image display unit as a result, after beginning pattern fluctuation and carrying out for a while.
[0003]By the way, only from the production by change and a stop of a pattern group, a display will become monotonous and a game person will get it bored to see an image display unit. The technology for solving this problem is indicated by JP,H8-229204,A and JP,H8-141161,A. It constitutes from technology indicated by the gazette concerned so that the movable body provided in the specified position may rotate according to a picture. Since not only change of a picture but a motion of a movable body is added according to this composition, the game person can play a game, seeing and enjoying signs that a picture and a movable body interlock and move.
[0004]
[Problem to be solved by the invention]However, the movable body provided in the specified position with the technology indicated by the gazette concerned only rotates according to a picture, and it is only one mode of a mere ornament deficiently in change. That is, a picture does not influence positively to a movable body conversely, without a movable body influencing positively to a picture. If it is got used to seeing a few, a game person will get bored with linkage of a picture and a movable body. The picture where this invention is made in view of such a point and which does not have a movable body with substance and substance aims at changing linkage of a movable body and a picture and making it not bore a game person by production which interlocks within a viewing area.

[0005]
[The means for solving a technical problem 1] The means for solving a technical problem 1 is as having indicated to Claim 1. Here, about the term indicated to Claim 1, it interprets as follows. The same can be said for the claim of others [interpretation / concerned], and the detailed description of the invention.
(1) All the things which can be displayed on a picture display part are included in "picture" like a special pattern and not only patterns usually, such as a pattern and an ornament pattern, but an image, and text.

(2) Not only all of the fields which can be displayed by a picture display part but a part of field concerned is included in "viewing-area."
(3) "picture display part" is good also as a display for indication (display device) of 1, and may consist of two or more displays for indication. The "viewing area" at the time of constituting from two or more displays for indication consists of all or a part of viewing areas of each display for indication.
(not only operation that a movable body enters so that it may see from the transverse plane of a game machine and may lap on a viewing area as 4) "a motion which enters in a viewing area" but operation to which the movable body which has moved from the outside of a picture display part changes and enters into the picture which imitated the movable body within a viewing area is included. "A motion which enters in a viewing area at least" is the meaning which includes arbitrarily not only the motion that enters in a viewing area but the motion within a viewing area, the motion which comes out out of a viewing area, etc.
[0006]According to the means 1 concerned, if a motion-control part moves a movable body, the motion will be interlocked with and an image control part will display a picture on a viewing area. At this time, a movable body moves within and without a viewing area, or comes out [entering in a viewing area ****, or] out of a viewing area. If it sees from a game person, a motion of a movable body will be interlocked with and a picture will change. Therefore, since a picture changes according to a motion of a movable body, the game person who looks at a picture display part is not bored.
[0007]
[The means for solving a technical problem 2] The means for solving a technical problem 2 is as having indicated to Claim 2. The mode which begins change of a pattern group is also included from the mode which suspends change of not only the mode that only changes a certain picture into other pictures for here, the term indicated to Claim 2 "changing a picture" but a pattern group, and a stopped picture. The same can be said for the claim of others [interpretation / concerned], and the detailed description of the invention.
[0008]According to the means 2 concerned, an image control part changes a picture and a motion-control part moves a movable body so that a motion of a movable body and change of a picture in a viewing area may interlock. That is, a movable body will move according to a picture which a picture changed according to a movable body which moved within a viewing area, or changed within a viewing area conversely. Therefore, since linkage of a movable body and a picture changes to Oshi more, a game person who looks at a picture display part is not bored more.
[0009]
[The means for solving a technical problem 3] The means for solving a technical problem 3 is as having indicated to Claim 3. Here, "a dynamic operation" of a term indicated to Claim 3 is an operation which imitates [to strike (it strikes)] a natural phenomenon like dropping [which is taken / which is pulled / to push / up and down]. The same can be said for a claim of others [interpretation / concerned], and the detailed description of the invention.
[0010]According to the means 3 concerned, if a movable body enters in a viewing area, an image control part will change a picture or a motion-control part will move a movable body. It is made visible [change of the picture concerned or a motion of a movable body] in either the movable body or a picture having done a dynamic operation to another side. Signs that exert a dynamic operation on a picture without substance from a movable body which has impossible substance actually by such control, or a dynamic operation is exerted on a movable body which has substance from a picture which does not have substance conversely can be directed. Therefore, since linkage of a movable body and a picture changes to Oshi more, a game person who looks at a picture display part is not bored more.
[0011]
[The means for solving a technical problem 4] The means for solving a technical problem 4 is as having indicated to Claim 4. The mode which begins change of a pattern group is also included from

the mode which suspends change of not only the mode that only changes a certain pattern into other patterns the same with "a picture is changed" for here, the term indicated to Claim 4 "changing a pattern" but a pattern group, and a stopped pattern. The same can be said for the claim of others [interpretation / concerned], and the detailed description of the invention.
[0012]According to the means 4 concerned, an image control part changes a pattern and a motion-control part moves a movable body so that the motion of a movable body and the change of a pattern in a viewing area may interlock. That is, a movable body will move according to the pattern which the pattern changed according to the movable body which moved within the viewing area, or changed within the viewing area conversely. If it carries out like this, since it not only sees and enjoys signs that a movable body and a pattern interlock and move, but the interlocking motion is related to privilege acquisition, the pleasure which looks at the situation concerned will increase.
[0013]
[Mode for carrying out the invention]Hereafter, the embodiment in this invention is described based on Drawings.
[Embodiment 1] Embodiment 1 is the example which applied this invention to the pachinko machine provided with the hammer as a movable body. The Embodiment 1 concerned is described referring to drawing 1 - drawing 12.
[0014]A front view shows appearance of the pachinko machine 10 equivalent to a game machine to drawing 1. On the game board surface 12 of the pachinko machine 10 shown in drawing 1, A pachinko ball to pass. The gate sensors 22 and 48 to detect. The gates 24 and 46 which it has, respectively, and a pachinko ball which won a prize. The start opening sensor 50 to detect. the big prize port 26 which has the V zone 44 which can continue a big-hit-games state within the number of times of necessary (for example, 16 times) if the 1st type start opening 20 and a pachinko ball which it has win a prize within a big prize port opening period (for example, for 20 seconds) -- so that it may mention later. The hammer 68, the complex device 14 which usually has the pattern display 72 and special pattern display-for-indication 64 grade and other general prize ports, a windmill, a nail, etc. are arranged suitably. The big prize port 26 has the lid 60 opened and closed by the solenoid 42. The lower start opening 56 which has the start opening sensor 54 which detects a pachinko ball which won a prize under this big prize port 26 is established. The lower start opening 56 concerned is provided with a function equivalent to the 1st type start opening 20. The 1st type start opening 20 and the lower start opening 56 will pay out awarded balls like the usual prize port, if a pachinko ball all wins a prize.
[0015]The complex device 14 shown in drawing 2, The hammer 68 and common pattern which reciprocating movement constituted possible in the sliding direction focusing on the pivot 70 are changed or stopped. The common pattern display 72 and picture to display. It has the special pattern display for indication 64 to display, the reserved ball lamp 62 which usually displays the number of a pachinko ball which passed through the gates 24 and 46 during change of a pattern, and the reserved ball lamp 66 grade which displays the number of the pachinko ball which won a prize of the 1st type start opening 20 or the lower start opening 56 during change of a special pattern. Hereafter, the number which can be recognized by the display of the reserved ball lamp 66 is called "the number of reserved balls." Change starts and the pattern display 72 usually stops after specified time elapse, when it consists of two or more photogens (for example, LED which emits green and LED which emits red) and a pachinko ball passes to the gates 24 and 46. It changes by specifically blinking a photogen. And if a specific photogen (for example, red LED) stops in the state of switching on the light or putting out the light, only fixed time (for example, for 4 seconds) will open the lid of the lower start opening 56.
[0016]The special pattern display for indication 64 equivalent to a picture display part displays special patterns (for example, a pattern, an alphanumeric character, a sign, etc.), an ornament pattern, etc. as a picture using a liquid crystal display. If a pachinko ball wins a prize of the 1st type start opening 20 or the lower start opening 56, it is begun to change a special pattern displayed on

this special pattern display for indication 64, and it stops after specified time elapse.Although a liquid crystal display was used as the special pattern display for indication 64, what kind of display for indication which can display a picture may be used like CRT, a LED display device, and a plasma display. Although the pattern display 72 and the special pattern display for indication 64 were usually used separately, it is good also as what makes both sides serve a double purpose with the same display for indication. The reserved ball lamps 62 and 66 consist of a photogen (for example, four LED) of plurality [each].

[0017]An example of composition for moving the hammer 68 equivalent to a movable body is shown in drawing 3. A motion is controlled by the main control substrate 100 which the solenoid 86 which has the rod 84 which can move in the arrow D4 direction (Drawings longitudinal direction) to illustrate mentions later. Power generated in the solenoid 86 is transmitted to the hammer 68 through a torque transmission mechanism, and makes the hammer 68 move reciprocately to an arrow D 2-way (Drawings sliding direction). Hereafter, an example of a torque transmission mechanism is explained. The engaging member 76 is formed in a point of the rod 84 via the coupling member 82. The engagement piece 78 which engages with this engaging member 76 is formed in the rotor plate 74 which rotates focusing on the pivot 80 (any of positive rotation, counterrotation, and reciprocal rotation may be sufficient, and rotation is included). The fan board 88 is mostly formed in an opposite hand to the pivot 80 at the rotor plate 74 at one, and a gear tooth is formed in a circle (periphery) part of the fan board 88 concerned. The hammer 68 is fixed to the rotation member 90 rotated focusing on the pivot 70, and a gear tooth of the above-mentioned fan board 88 and a gearing gear tooth are formed on the circumference of the rotation member 90 concerned. According to this mechanism, an advance and retreat movement of the rod 84 is changed into rotation [both-way] rotational movement centering on the pivot 80 through the engaging member 76 and the engagement piece 78. If this rotational movement gets across to the hammer 68 via a gear tooth and is seen from a transverse plane of the pachinko machine 10, the hammer 68 will move reciprocately to a sliding direction focusing on the pivot 70. A torque transmission mechanism is good also not only as composition mentioned above but other composition. Other drivers (for example, motor etc.) which replace the solenoid 86, and transmission parts (for example, a belt, a chain, a rack & pinion, etc.) replaced with a gear tooth may specifically be used, and a torque converter etc. may be used further. It may constitute so that the hammer 68 may be made to exercise directly with drivers, such as the solenoid 86 and a motor.

[0018]Return to drawing 1 and down the game board surface 12 in the pachinko machine 10, It has the handle 32 provided with the ash pan 38 into which the lower dish 36 which stores temporarily the pachinko ball containing awarded balls, the cigarette end of tobacco, etc. are put, and the touch sensor 34 which detects whether the game person's hand is touching, the loudspeaker 40 which has provided in the inside of the top plate 30 which is a saucer of awarded balls, and takes out a sound effect, music, etc., etc. It has the lamps 16 which consist of a photogen arranged at the suitable position according to the frame opening sensor 28 which detects opening of the glass frame 18, the game content of the pachinko machine 10, etc.

[0019]Next, the main control substrate 100 (motion-control part) which realizes the pachinko game by the pachinko machine 10, It explains referring to drawing 4 in which these outline composition was shown for the display control board 200 (image control part) which displays a picture on the special pattern display for indication 64 in response to the display command sent from the main control substrate 100. These main control substrates 100 and display control boards 200 are provided in the back side of the pachinko machine 10. The main control substrate 100 shown in drawing 4 is constituted focusing on CPU(processor) 110, A game control program and necessary game data. (For example, a great success value) etc. ROM112, various kinds of random numbers, data, an input output signal, etc. to store. RAM114 to store and the signal sent from various kinds of input devices. The input processing circuit 102 which is received and is changed into the data format which can be processed within the main control substrate 100, the output processing circuit

104 which operates various kinds of output units in response to the operation data sent from CPU110, and the indicative data sent from CPU110. It has the display control circuit 106 which wins popularity and displays various kinds of display objects suitably (lighting and putting out lights are included), and communication control circuit which transmits necessary data to display control board 200 116 grade. Each of these components is mutually combined with the bus 118.
[0020]Although CPU110 executes the game control program stored in ROM112 and the game by the pachinko machine 10 is realized, the program for realizing the 1st type start opening processing etc. which are mentioned later is also included in the game control program concerned. Although DRAM is used for RAM114 ROM112 using EPROM, the memory of other kinds may be used. being concerned -- others -- there are EEPROM, SRAM, a flash memory, etc. as a memory of a kind. As an input device with which the input processing circuit 102 receives a signal, there are the start opening sensors 50 and 54, the gate sensors 22 and 48, a prize sensor (V zone sensor 52 grade), or other sensors (the touch sensor 34, frame opening sensor 28 grade), for example. As an output unit with which the output processing circuit 104 outputs a signal, there are the solenoid 42 and 86 grades, for example. As a display object which the display control circuit 106 displays, there is the lamps 16, the reserved ball lamps 62 and 66, or common pattern display 72 grade, for example. The communication control circuit 116 can transmit necessary data also to a frame control board, a hall computer, etc. which are not illustrated further if needed.
[0021]Next, the display control board 200 is constituted focusing on CPU210, RAM204 which stores ROM202 which stores a display control program and necessary indicative datas (for example, display information, two or more variation patterns, etc. corresponding to a display command), a display command, display information, an input output signal, etc., and the data transmitted from the main control substrate 100. It has the VDP(Video Display Processor)214 grade which processes and displays a picture to the special pattern display for indication 64 in response to the communication control circuit 206 received and carried out, the character generator 212 which generates a necessary picture, and the display information sent from CPU210. Each of these components is mutually combined with the bus 208.
[0022]Although CPU210 executes a display control program stored in ROM202 and a picture is displayed on the special pattern display for indication 64, a program for realizing picture display processing etc. which are mentioned later is also included in the display control program concerned. Although DRAM is used for RAM204 ROM202 using EPROM, a memory of other kinds may be used. being concerned -- others -- there are EEPROM, SRAM, a flash memory, etc. as a memory of a kind. The communication control circuit 206 can transmit necessary data also to a frame control board, a hall computer, etc. which are not illustrated further if needed. As a picture which the character generator 212 generates, there are animations, such as characters (an alphanumeric character, a Chinese character, etc.), patterns (a special pattern, an ornament pattern, etc.), and animation, Still Picture Sub-Division, an image, etc., for example. VDP214 which has VRAM, palette RAM, etc., Data of a character corresponding to display information, a pattern, a background, etc. is generated and read with the character generator 212, and after performing image editings, such as color scheme specification and sprite processing, and carrying out data expansion to VRAM or palette RAM, a video signal, a synchronized signal, etc. are eventually outputted to the special pattern display for indication 64.
[0023]In the pachinko machine 10 constituted as mentioned above, in order to realize this invention, the procedure performed by the main control substrate 100 or the display control board 200 is explained with reference to drawing 5 - drawing 10. Here, a flow chart shows the contents of the reach processing of the contents of the fluctuation displaying processing of the contents of the pattern fluctuation processing of the contents of the 1st type start opening processing to drawing 6 to drawing 7 to drawing 8, the contents of interlocking change processing, and the contents of picture display processing to drawing 9 at drawing 5 at drawing 10, respectively. The 1st type start opening processing, pattern fluctuation processing, fluctuation displaying processing, reach

processing, and interlocking change processing among such procedure, CPU110 executes the game control program stored in ROM112 in the main control substrate 100 shown in drawing 4 to suitable timing (for example, cycle in every 4 milliseconds), and all are realized. In the display control board 200, to suitable timing, CPU210 and VDP214 execute a program and realize picture display processing. Time Measurement Division required for the synchronization etc. of the hammer 68 and pictures (a special pattern, an ornament pattern, etc.) which are mentioned later is performed by counting the execution frequency concerned, whenever it executes a program with the cycle in every 4 milliseconds mentioned above. Although "it adds" as used in the following explanation means that only 1 usually increases the number of reserved balls, the case where it increases two or more [every] suitably according to a game position etc. is included. On the other hand, it is the same as that of the case where it adds except for the point of reducing the number of the reserved balls "to subtract." Since the 1st type start opening 20 and the lower start opening 56 function similarly, in order to explain simply, they make the 1st type start opening 20 an example, and are explained. As an example of the picture displayed on the special pattern display for indication 64, three variable regions (a left-hand side side, the inside side, right-hand side) are divided, a pattern group is changed, respectively, and the mode which stops middle figures to the variable region by the side of inside, and stops right figures for left figures to a right-hand side variable region is applied to a left-hand side variable region.

[0024]The 1st type start opening processing shown in drawing 5 realizes winning-a-prize distinction of a pachinko ball to the 1st type start opening 20. First, it is distinguished whether the pachinko ball won a prize of the 1st type start opening 20. [Step S10] .if a detecting signal is specifically received from the start opening sensor 50 in drawing 4 -- having won a prize (YES) -- it distinguishes and distinguishes from (NO) which has not won a prize if the detecting signal concerned is not received. If a pachinko ball wins a prize of the 1st type start opening 20, it will be distinguished whether the number of reserved balls reached upper limit (for example, 4). [Step S12] .If the number of reserved balls has not reached upper limit, (NO) and its number of reserved balls are added. [Step S14] .LED of the reserved ball lamp 66 is turned on according to the added number of reserved balls. Then, it is a deed about reading and memory of various random numbers. [Step S16] The 1st type start opening processing is ended. When the pachinko ball has not won a prize of the 1st type start opening 20 (NO of Step S10), or when the number of reserved balls reaches upper limit (YES of Step S12), the 1st type start opening processing is ended as it is, without doing anything.

[0025]Random number RA for a great success judging, the random number RB for big hit patterns, reach pattern random number RC, random number RD for probability variations, etc. are among various random numbers which are read at Step S16 here and memorized to RAM114. Random number RA for a great success judging is used in order to distinguish whether it is great success. When distinguished from great success by random number RA for a great success judging, since a big hit pattern (a specified pattern should put together) stopped and displayed on the special pattern display for indication 64 is specified, the random number RB for big hit patterns is used. Since a display pattern after reaching reach until it suspends change is specified according to a reach pattern (a prescribed pattern should put together) etc. which were displayed on the special pattern display for indication 64, reach pattern random number RC is used. "Reach" or a "reach condition" means the state where other special patterns are in agreement with a reach pattern, except for the remaining special patterns still changed. Random number RD for probability variations is used in order to distinguish whether probability which is becoming it a great success is changed after being becoming it a great success.

[0026]Pattern fluctuation processing shown in drawing 6 realizes a display which changes for it or stops a pattern group to the special pattern display for indication 64. It is distinguished first whether the number of reserved balls is a positive number (that is, number of reserved balls >0 is filled). [Step S20] .When the number of reserved balls is a positive number, while reading (YES) and random number RA for a great success judging memorized at the above-mentioned step S16 [Step S22]

The number of reserved balls is subtracted in preparation for next processing. [Step S24] .LED of the reserved ball lamp 66 is turned on according to the subtracted number of reserved balls. And fluctuation displaying processing is performed. [Step S26] .The concrete contents of fluctuation displaying processing are explained referring to drawing 7.

[0027]The fluctuation displaying processing shown in drawing 7 realizes a display since it begins to change a pattern group, until it stops. It is distinguished first whether it is "great success." [Step S40] .It distinguishes by whether random number RA for a great success judging read at the above-mentioned step S22 was specifically in agreement with the great success value. Although a great success value is usually one piece, suppose two or more according to a game position (for example, probability variation) etc. It is reading about the random number RB for big hit patterns memorized at Step S16 of (YES) and drawing 5 when distinguished from "great success." [Step S42] It progresses to Step S44 mentioned later that it should be begun to fluctuate a pattern group. According to the value of the random number RB for big hit patterns concerned, the pattern (it calls the following "stop schedule pattern".) which is due to stop eventually and to be decided is determined. When distinguished from a "blank" at Step S40, in order to display (NO) and a blank pattern on the special pattern display for indication 64 on the other hand, after shifting and reading pattern data from RAM114 [Step S60] It is distinguished whether a reach pattern is included in the blank pattern concerned. [Step S62] .The combination of left figures and right figures corresponds and a reach pattern is the same pattern (what is called a Zorro eye) in the usual pachinko machine 10. Supposing it includes a reach pattern (YES), it will progress to Step S44 later mentioned since reach is reached on the way, although it becomes a "blank" eventually. If a reach pattern is not included, it progresses to (NO) and Step S64 mentioned later.

[0028]After sending a display command to the display control board 200 and beginning to change a pattern group [Step S44] Reach processing is performed. [Step S46] .It supposes that the processing performed by the display control board 200 is mentioned later, and it explains, referring to drawing 8 for the concrete contents of reach processing first. The reach processing shown in drawing 8 realizes change based on a reach display and a reach pattern. It is reading about reach pattern random number RC first memorized at Step S16 of drawing 5. [Step S70] A reach pattern is determined. [Step S72] .A decision of a reach pattern is made according to Table 1 shown below based on the stop schedule pattern determined, for example at Step S42 (or step S60) of drawing 7, and reach pattern random number RC read at Step S70 of drawing 8. The example of setting out of the relation of a pattern and reach pattern random number RC which can take ones from 0 to 10 of numerical values is shown in the table 1 concerned. The relation of a pattern is a gap of the pattern between a reach pattern and middle figures, and it divides into other patterns (for example, 3 pattern front, after 3 patterns, etc.) in consideration of the changing direction before 2 patterns and 1 pattern and after same pattern and 1 pattern and 2 patterns. For example, if middle figures are a pattern "6" when a reach pattern is a pattern "7", the middle figures seen from the reach pattern will become "1 pattern front."

[0029]

[Table 1]

図柄の関係＼乱数値	0	1	2	3	4	5	6	7	8	9	10
2図柄前	α	α	α	α	β	γ	γ	δ	δ	δ	ζ
1図柄前	α	β	β	γ	γ	γ	δ	δ	ζ	ζ	ζ
同一図柄	α	β	γ	γ	γ	δ	δ	δ	ε	ε	ζ
1図柄後	α	β	β	γ	γ	δ	δ	δ	ζ	ζ	ζ
2図柄後	α	α	α	α	β	γ	γ	δ	δ	δ	ζ
他の図柄	α	α	α	α	α	α	α	β	β	δ	ζ

[0030]In the example of the above-mentioned table 1, the six reach patterns alpha, beta, and gamma, delta, epsilon, and zeta are set up. For example, after being after reaching reach, and middle figures' stopping and displaying a big hit pattern, Let the reach pattern (it calls the following "interlocking change action".) in which the picture (change and a stop of a pattern group are included) immediately displayed on a motion and the special pattern display for indication 64 of the hammer 68 as a movable body interlocks, and one pattern of all the special patterns are changed at a time be the reach pattern beta. Here, the outline of each display information is illustrated to Table 2 about the reach pattern alpha, beta, and gamma, delta, epsilon, and zeta.
[0031]
[Table 2]

リーチパターン	表示内容の概要
α	ノーマルアクション
β	連動変動アクション
γ	再抽選アクション
δ	正逆変動
ε	移動位置で2回アクション
ζ	図柄の拡大アクション

[0032]"Action" shown in Table 2 is performing animation etc. With "re lottery action", after becoming a "blank" according to the stopped special pattern (left figures, middle figures, right figures), a pattern group is changed again in a variable region etc., and the re lottery of being great success is performed. "Right reverse change" is one mode of a stop, and centering on the specified position (for example, horizon passing through middle of the screen) of the special pattern display for indication 64, only a prescribed range (it is a part for a half-pattern to a sliding direction) shakes to a prescribed direction, and it moves a special pattern to it. A "movement zone" is a position on the screen in the special pattern display for indication 64, and it differs from the above-mentioned specified position in principle. "Expansion action of a pattern" means the state of expanding a reach pattern during change of middle figures, and displaying it.
[0033]setting out of the position of the reach pattern alpha, beta, and gamma in the above-mentioned table 1 when predetermined conditions are satisfied here, delta, epsilon, and zeta, the number, etc. -- also changing (making it change) -- it is good. As predetermined conditions, conditions may be appropriately changed according to the case where a special pattern stops in a specification pattern (it is a pattern "333", including the combination of a specified pattern and a specified pattern), for example, the kind of pachinko machine 10, time, etc. If it carries out like this,

the game person can maintain until all the special patterns stop the hope which is becoming it a great success. If predetermined conditions are satisfied, the number of patterns, composition of a kind or a pattern group, etc. which are changed in a variable region may be changed. If it carries out like this, the mode of interlocking change action will change and the possibility of great success by execution of interlocking change action will become high by a case. Therefore, the game person can play a game with change of the display mode by interlocking change action with the hope which is becoming it a great success.

[0034]After determining a reach pattern, a display command is sent to the display control board 200, and a reach pattern is displayed on the special pattern display for indication 64. [Step S74] .Although a reach pattern is displayed on the special pattern display for indication 64, it may be displayed only on other displays for indication, and may be displayed on the both. Since a reach pattern etc. will be displayed also on displays for indication other than special pattern display–for–indication 64 if it carries out like this, it becomes easy to recognize what a reach pattern is. When displaying a reach pattern, it may report having reached reach further to a game person. As the information concerned, a character, predetermined animation, etc. of "reach" are displayed, for example, a sound and a specific sound effect are taken out from the loudspeaker 40, and there is a mode of vibrating the chair in which the handle 32 which a game person touches, and a game person sit down. If it carries out like this, the game person can recognize having reached reach more certainly.

[0035]Then, processing is divided by whether the reach pattern determined at Step S72 is the reach pattern beta (specific reach pattern). [Step S76] .At the time of reach patterns other than the reach pattern beta, it stops, after changing by the reach pattern which sent the display command to (NO) and the display control board 200, and was determined as them at Step S72. [Step S80] .The settled middle figures are displayed on the special pattern display for indication 64 by this stop, and the special pattern (left figures, middle figures, right figures) in this lottery is decided. On the other hand, (YES of Step S76) and interlocking change processing are performed at the time of the reach pattern beta. [Step S78] .It explains referring to drawing 9 for the concrete contents of the interlocking change processing concerned.

[0036]The interlocking change processing shown in drawing 9 realizes linkage with the pictures (a special pattern, an ornament pattern, etc.) displayed on a motion and the special pattern display for indication 64 of the hammer 68 as a movable body. First, random number RA for a great success judging distinguishes whether it is great success like the above–mentioned step S40 depending on whether it is the no which is in agreement with a great success value. [Step S90] .(YES) and the following processings are performed at the time of great success. That is, the special pattern under change is stopped and a stop schedule pattern is displayed. [Step S92] The number of times (it calls the following "number of times of a re change".) n which performs a re change is determined. [Step S94] A stop schedule pattern is changed further. [Step S96] .A re change is a mode which synchronizes all the special patterns (left figures, middle figures, right figures) displayed in three variable regions, and is changed in the beginning at high speed, it is 2 times – 10 times of within the limits, and a decision of the number of times n of a re change is made based on a random number, a data table, etc. Although change of a stop schedule pattern determines the special pattern stopped eventually by the same method as the number of times n of a re change, consistency is aimed at between random number RD for probability variations, and the stop schedule pattern after change. For example, when it is a probability variation, the special pattern which is not a probability variation may be changed into a stop schedule pattern by random number RD for probability variations. In this case, the number of times n of a re change is adjusted (addition or subtraction), and it is made for the stop schedule pattern after change to turn into a special pattern of a probability variation. This is also the same as when it is not a probability variation by random number RD for probability variations.

[0037]And in order to direct so that the display screen of the special pattern display for indication

64 may be struck, after shaking the hammer 68 down [Step S98] A motion of the above-mentioned hammer 68 is interlocked with, and the background figure handle which is one of the ornament patterns and is displayed as a background of a special pattern is displayed. [Step S100] .A motion of the hammer 68 is realized by transmitting operation data to the solenoid 86 via the output processing circuit 104 from CPU110 shown in drawing 4. If a re change is furthermore begun about a special pattern [Step S102] The hammer 68 shaken down is flung up and it is made to return to an original position. [Step S104] .If the number of times n of a re change is not 0 (NO of Step S106), while suspending a re change in front of n pattern [Step S109] The number of times n of a re change is subtracted like the case of the number of reserved balls. [Step S108] Repeat execution of the above-mentioned steps S98-S104 is carried out. Therefore, while it is interlocked with that the hammer 68 swings down and changing a background figure handle, when performing the re change of a special pattern, the mode which flings up the hammer 68 will repeat only the number of times n of a re change. the special pattern displayed by this repetition at Step S109 -- the time of the number of times n= 7 of a re change -- "000" ->"111" ->"222" -> -- it changes with -> "777." Then, if the number of times n of a re change is set to 0 (YES of Step S106), a re change will be suspended in the stop schedule pattern changed at Step S96. [Step S107] Interlocking change processing is ended. If it is not great success at Step S90, it will separate from (NO, for example, middle figures), and will stop in a pattern. [Step S97] Interlocking change processing is ended. In this way, an end of interlocking change processing will also end the reach processing further shown in drawing 8.
[0038]Since a re change will be started whenever it shakes the hammer 68 down if the above-mentioned interlocking change processing is performed, a game person comes to look at a motion of the hammer 68, expecting to stop by a desirable special pattern. Since the number of times n of a re change determined at Step S94 usually differs each time, the game person cannot predict by what time it stops eventually. That is, it cannot be predicted whether it stops by a big hit pattern without stopping by a big hit pattern with the privilege of a probability variation, or the privilege concerned. Therefore, with the pleasure which looks at the special pattern display for indication 64, the game person can do a re change after how many times, or can play a game to a thrill with a hope. Although the special pattern after great success is changed only once in interlocking display processing shown in drawing 9 (Step S96), lots are not necessarily cast [that it is great success and] in connection with the re change. In order to give the hope which expects privileges, such as a probability variation, from a game person, a special pattern may be changed in the case of a re change (each time or specific stage). Here, the time chart at the time of performing the above-mentioned interlocking change processing is shown in the following table.
[0039]
[Table 3]

時間（秒）	特別図柄	時間（秒）	背景図柄	時間（秒）	可動体（ハンマー）
0.00	全特別図柄が変動開始	0.00	通常変動時の表示開始	0.00	原位置で停止
6.77	左図柄が「０」で停止				
7.92	右図柄が「０」で停止（リーチ）	7.92	リーチ時の表示開始		
8.20	中図柄が低速に変化				
15.99	中図柄が「０」で停止（大当り決定）				
					（再変動１回目）
				19.05	ソレノイド ON し、ハンマーが振り下ろされる。
19.15	全ての特別図柄が大きく揺れながら１図柄スクロール（「１１１」）	19.15	背景図柄全体が大きく揺れる	19.15	画面に当たる
				19.65	原位置に戻る
20.88	揺れが小さくなる	20.88	揺れが小さくなる		
21.17	揺れ停止	21.17	揺れ停止		
					（再変動２回目）
				21.35	ソレノイド ON し、ハンマーが振り下ろされる。
21.45	全ての特別図柄が大きく揺れながら１図柄スクロール（「２２２」）	21.45	背景図柄全体が大きく揺れる	21.45	画面に当たる
				21.95	原位置に戻る
22.03	揺れが小さくなる	22.03	揺れが小さくなる	・	・
22.32	揺れ停止	22.32	揺れ停止	・	・
・	・	・	・	・	・
・	・	・	・	・	・
・	・	・	・	・	・
・	・	・	・	・	（再変動７回目）
・	・	・	・	27.98	ソレノイド ON し、ハンマーが振り下ろされる。
・	・	・	・		
・	・	・	・	28.08	画面に当たる
・	・	・	・	28.58	原位置に戻る
・	・	・	・		
29.81	揺れ停止（最終的に大当り図柄「７７７」に確定）	29.81	揺れ停止		
	（終了）		（終了）		（終了）

[0040]The example of the above-mentioned table 3 shows a process until it stops the special pattern eventually settled from the fluctuation start of the pattern group corresponding to a special pattern, a background figure handle, and the hammer 68 (movable body). That is, the time of starting change of a pattern group is made into 0 second, and the mode performed after that is shown with lapsed time. When time is shown below, the lapsed time concerned is meant. Specifically the first special pattern "000" is stopped and displayed in 15.99 seconds, and a special pattern and a background figure handle are shaken in 19.15 seconds, or it sways [the hammer 68 is swung down in 19.05 seconds, and], and this shake is stopped in 21.17 seconds. At this time, the special pattern is "111." 0.5 seconds after swinging down the swung-down hammer 68, it is returned. The motion and change before and behind that were beforehand decided on the basis of the timing to which, as for vibration of a special pattern and a background figure handle or a shake, the hammer 68 strikes a display screen. Such a hammer 68 is shaken, only the number of times n of a re change stops a shake in 29.81 seconds eventually repeatedly, and vibration of taking down, and a special pattern and a background figure handle displays the special pattern "777." Thus, since the game person cannot know the number of times which repeats the process in which a re change is carried out if the hammer 68 is swung down, a game person does not know whether it cannot be predicted when it stops eventually, and becomes a probability variation. Therefore, the game person can play a game, throbbing on a hope and a thrill.

[0041]After finishing reach processing, it returns to drawing 7 and it is distinguished whether it is a probability variation. [Step S48] .When distinguished from a probability variation, after performing

(YES) and probability variation processing [Step S50] Fluctuation displaying processing is ended. Whether random number RD for probability variations which memorized whether it was a probability variation at Step S16 of drawing 5 is in agreement with a specified value performs. About the contents of probability variation processing, since it is well-known, explanation is omitted. If probability variation processing is performed, the probability which stops by a big hit pattern and is becoming it a great success after change will increase, and the fluctuation period of a special pattern will be shortened until it becomes next great success after this end of big hit games. The probability which hits after change, stops in a pattern and becomes a hit increases, and the fluctuation period of a pattern is usually shortened. On the other hand, if it is not a probability variation (NO of Step S48), fluctuation displaying processing will be ended, without doing anything. When it is not a reach pattern in Step S62, it is begun like (NO) and Step S44 here, to change a pattern group. [Step S64] After changing based on a predetermined variation pattern, it shifts and stops in a pattern. [Step S66] It progresses to the above-mentioned step S48. In the above-mentioned step S64 and S66, a display command corresponding, respectively is sent to the display control board 200, and it realizes.

[0042]The special pattern which returned to drawing 6 after finishing fluctuation displaying processing, was decided eventually, and was displayed on the special pattern display for indication 64 distinguishes whether it is in agreement with a big hit pattern. [Step S28] .Although it has distinguished whether it is great success also at Step S40 shown in drawing 7, this distinction is performed based on random number RA for a great success judging read at Step S22. However, in the time of performing fluctuation displaying processing of Step S26, etc., what wins popularity and serves as a great success display which was being planned may separate from the influence of an extraneous noise etc., and it may be displayed. Therefore, in order to prevent confusion of a pachinko game, priority is given to the special pattern displayed on the special pattern display for indication 64, and it distinguishes that it is great success. With the reliable pachinko machine 10, it may be distinguished at Step S28 whether it is "great success" only based on random number RA for a great success judging that it is hard to be influenced by an extraneous noise etc. If it carries out like this, processing speed will improve. If the settled special pattern is in agreement with a big hit pattern (YES), it will be a deed about great success processing as "great success." [Step S30] Pattern fluctuation processing is ended. Great success processing performs big hit games, such as only fixed time (for example, for 30 seconds) opening the lid 60 of the big prize port 26 wide, for example, and paying out awarded balls according to the number of the pachinko balls which won a prize. On the other hand, if the settled special pattern is not in agreement with a big hit pattern, as (NO) and a "blank", it is a deed about gap processing. [Step S32] Pattern fluctuation processing is ended. About the contents of blank processing, since it is well-known, explanation is omitted.

[0043]Next, the picture display processing as which the display control board 200 which received the display command sent from the main control substrate 100 performs an image editing, and displays a picture on the special pattern display for indication 64 is explained, referring to drawing 10. The display command sent from the main control substrate 100 shall be memorized by the receive buffer provided in the RAM204 grade shown in drawing 4 with the separate processing program executed by reception interruption. It is reading about the display command which CPU210 memorized to the receive buffer first in the picture display processing shown in drawing 10. [Step S110] An indicative data is acquired based on the read display command, and it memorizes to RAM204. [Step S112] .An indicative data is acquired with reference to the data table which specified the relation between a display command and an indicative data, and was more specifically memorized in the ROM202 grade. This indicative data is a data element (parameter) for performing an image editing, for example, has a status number, a left-figures number, left position coordinates, a middle-figures number, an inside position coordinate, a right-figures number, the right position coordinate, an animation number, a status flag, an animation timer, etc. In this way, 210 which acquired the acquired indicative data transmits the indicative data concerned to VDP214.

[0044]VDP214 which received the indicative data from CPU210 extracts the data of a character, a pattern, a background, etc. from the character generator 212 based on the indicative data concerned. [Step S114] After performing image editings, such as color scheme specification and sprite processing [Step S116] Data is developed on VRAM or palette RAM. [Step S118] .And the developed data is changed into a picture signal and it outputs to the special pattern display for indication 64. [Step S120] .In this way, the pattern etc. which were edited based on the indicative data can be displayed on the special pattern display for indication 64. Since it carries out by VDP214 by making an image editing into hardware, a picture can be displayed at high speed.
[0045]Next, each processing shown in above-mentioned drawing 5 - drawing 10 is performed, and it explains, referring to drawing 11 and drawing 12 for the example which displays a picture on the special pattern display for indication 64, while moving the hammer 68. The example of the picture displayed on the special pattern display for indication 64 is shown in drawing 11 and drawing 12. This example shows an example of the case which is "becoming it a great success", and omits a graphic display and explanation about the case of a "blank" by which it is generated mostly. If it is becoming it a great success by a special pattern "777", it will be assumed that it becomes a probability variation.
[0046]The background figure handle (ornament pattern) which imitated the tree of the mountain, the river, and the coconut other than the three variable regions a2, a4, and a6, etc. as a background as shown in drawing 11 and drawing 12 is first displayed on the display screen of the special pattern display for indication 64 simultaneously. It is begun to fluctuate pattern groups in the fluctuation start (Step S44 of drawing 7, S64) of a pattern group almost all at once the variable region a2 shown in drawing 11 (A), a4, and a6. For example, after determining the reach pattern beta at Step S72 of drawing 8, a reach pattern is displayed in order to report having reached reach to a game person (Step S74 of drawing 8). In the example of drawing 11 (B), the special pattern "0" respectively same as a reach pattern is stopped and displayed on the left figures b2 of the variable region a2, and the right figures b6 of the variable region a6. Then, change of the pattern group still ongoing in the variable region a4 is suspended, and a stop schedule pattern is displayed (Step S92 of drawing 9). In the example of drawing 11 (C), the special pattern "000" is stopped and displayed on the variable region a2, a4, and a6 as a big hit pattern. GAKKARI [person] for a while although a game person is great success since it turned out at this time that it is not a probability variation.
[0047]Next, the hammer 68 is swung down, the motion is interlocked with, and a special pattern and/or a background figure handle are displayed (Step S98 of drawing 9, S100). When the hammer 68 ******(ed) actually strikes a display screen, in order to make a game person think that there was a shock, swaying a special pattern and a background figure handle in the example of drawing 12 (A), is continued for a while. If a crashing sound, a vibration sound, etc. are taken out from the loudspeaker 40 at this time, presence will increase more. Then, while beginning the re change of a special pattern in the variable region a2, a4, and a6, If the hammer 68 is returned to an original position and the fluctuation period (for example, for 10 seconds) of a re change passes further, a special pattern will be stopped and displayed on the variable region a2, a4, and a6 (Step S102 of drawing 9, S104, S109). After it makes it scroll slowly and the re change of a special pattern changes to "111" from "000", shaking the special pattern concerned, for example, it stops scrolling. In the example of drawing 12 (B), while flinging up the hammer 68 and returning to an original position, the special pattern "111" is stopped and displayed on the variable region a2, a4, and a6 as a big hit pattern. Such a hammer 68 swings down, only the number of times n of a re change repeats the re change of /flinging up and a special pattern, and it is performed (Step S106 of drawing 9). And the stop schedule pattern after change is stopped and displayed eventually (Step S107 of drawing 9). In the example of drawing 12 (C), the special pattern "777" is eventually stopped and displayed on the variable region a2, a4, and a6 as a big hit pattern. Since it turns out to be a probability variation at this time, a game person expects and is pleased with future great successes.
[0048]As shown in drawing 3, drawing 12, etc., the hammer 68 was constituted so that it could move

reciprocately to a sliding direction, but it may constitute so that it can move reciprocately also to a longitudinal direction further. In this case, since flinging up / way taking down come to be able to do the hammer 68 individually corresponding to the three variable regions a2, a4, and a6, operation for deciding a special pattern, respectively about the left figures b2, the middle figures b4, and the right figures b6 can be performed. When the hammer 68 is swung down, a picture, such as denting the special pattern (the left figures b2, the middle figures b4, right figures b6) currently displayed on the special pattern display for indication 64, flying, or making it in pieces, may be displayed. Since a touch of reality will increase more if it carries out like this, pleasure of the game person who is looking also increases. The re change of a special pattern is good also as a mode which performs a re change not only about the mode which synchronizes and performs left figures, middle figures, and all the right figures but about the pattern group (or variable region) continued and changed after reach. Left figures -> for example, right figures -> in the pachinko machine 10 which stops in order of middle figures, the hammer 68 strikes the variable region a4, and a re change is performed so that middle figures may be changed one after another. If it carries out like this, a game person will look at the special pattern display for indication 64 with the hope which expects great success by the re change of the remaining special patterns.

[0049]If according to the above-mentioned Embodiment 1 it corresponds to Claim 1 and the main control substrate 100 (motion-control part) moves the hammer 68 (movable body), Steps S92-S107 of {drawing 9 which displays a big hit pattern (picture) in the display screen (viewing area) in which the motion is interlocked with and the display control board 200 (image control part) contains the variable region a2 of the special pattern display for indication 64 (picture display part), a4, and a6, S109, drawing 11 (C), drawing 12 (A), Refer to drawing 12 (B) and drawing 12 (C).} That is, in the re change after a special pattern stops by a big hit pattern, the hammer 68 is made to enter into the display screen concerned, and a re change is stopped. Therefore, since a special pattern changes according to a motion of the hammer 68, the game person who looks at the special pattern display for indication 64 is not bored.

[0050]The display control board 200 changed a special pattern, an ornament pattern, etc., and the main control substrate 100 moved the hammer 68 so that it might correspond to Claim 2 and a motion of the hammer 68 and change of a special pattern might interlock {refer to Steps S98-S104 and drawing 12 which are shown in drawing 9}. That is, the hammer 68 will be moved to compensate for the re change of a special pattern and stop which the re change of a special pattern and a stop are performed according to the hammer 68 which moves to a sliding direction on the display screen of the special pattern display for indication 64, and a picture is changed, or are conversely performed by the display screen concerned. Therefore, since linkage of the hammer 68 and a special pattern changes to Oshi more, the game person who looks at the special pattern display for indication 64 is not bored more.

[0051]When it furthermore corresponds to Claim 4 and the hammer 68 entered in the display screen of the special pattern display for indication 64, the display control board 200 changed the special pattern, and related the change to the display of the specified pattern {refer to Step S98 shown in drawing 9, S100, and drawing 12}. And a privilege is given to a game person according to the big hit pattern (special pattern; picture) stopped eventually {Step S30 shown in drawing 6}. If it carries out like this, since it not only sees and enjoys signs that the hammer 68 and a special pattern interlock and move, but the interlocking motion is related to privilege acquisition, the pleasure which looks at the situation concerned will increase.

[0052][Embodiment 2] Embodiment 2 is the example which applied this invention to the pachinko machine provided with the character as a movable body. The Embodiment 2 concerned is described referring to drawing 13 - drawing 16. Since the composition of the pachinko machine 10 is the same, in order to explain simply, Embodiment 2 explains a different point from Embodiment 1. The same mark is given to the same element as the elements (drawing 3 etc.) shown in Embodiment 1 in drawing 13 etc.

[0053]The complex device 92 shown in drawing 13 replaced with the complex device 14 shown in drawing 2, Reciprocating movement changes for them or stops the substance character 94 and common pattern which were constituted possible in the arrow D6 direction (Drawings sliding direction). The common pattern display 72 and picture to display. It has the special pattern display for indication 64 to display, the reserved ball lamp 62 which usually displays the number of a pachinko ball which passed through the gates 24 and 46 during change of a pattern, and the reserved ball lamp 66 grade which displays the number of the pachinko ball which won a prize of the 1st type start opening 20 or the lower start opening 56 during change of a special pattern.
[0054]It is what ornamented by piercing a plate, and constitutes, and the substance character 94 which imitated the alligator goes in and out from the entrance 92a with which the complex device 92 was equipped. This substance character 94 receives the power generated by the motor 97 through a power transmission device, and moves. Hereafter, the example of a power transmission device is explained. The substance character 94 is fixed to the rack 95, and the pinion 96 which gears with the rack 95 is fixed to the axis of rotation 97a of the motor 97. The motor 97 replaces the solenoid 86 shown in drawing 4 etc., and controls rotation by the main control substrate 100. Therefore, a motion of the substance character 94 is controllable by controlling rotation of the motor 97 from the main control substrate 100. A motion of the substance character 94 may be controlled by composition of the torque transmission mechanism etc. which were mentioned above.
[0055]Although the reach processing shown in drawing 14 performs reach processing shown in drawing 8, and almost same processing, it is replaced with interlocking change processing (Step S78), and performs the following processings. That is, at the time of the reach pattern beta, the virtual character 98 (movable body of imagination) which imitated the substance character 94 (movable body of substance) is displayed on the special pattern display for indication 64 while continuing change of (YES of Step S76), and the remaining pattern groups. [Step S82] .And after interlocking change of a pattern group, and a motion of a movable body [Step S84] Change of the pattern group concerned and a motion of a movable body are stopped. [Step S86] .The example of these steps S82-S84 is explained with reference to drawing 15 and drawing 16.
[0056]When reach is reached and Step S82 is performed, the virtual character 98 is made to appear in the special pattern display for indication 64, as shown in drawing 15 (A). In the example of drawing 15 (A), the virtual character 98 has appeared from screen right-hand side. This virtual character 98 is the picture which imitated the substance character 94, and as shown in drawing 15 (B), after an appearance moves it towards the position in which the substance character 94 is (in for example, arrow D8 direction). In the example of drawing 15 (B), the tail of the virtual character 98 under which it tries to go underwater is in sight. And when Step S84 is performed, the substance character 94 is made to appear and it is made to enter in the viewing area of the special pattern display for indication 64 shortly, as shown in drawing 16 (A). In the example of drawing 16 (A), in order to stop the middle figures b4, the substance character 94 has entered in the viewing area of the special pattern display for indication 64. Then, change of a pattern group currently performed in the arrow D10 direction is made slow, and as shown in drawing 16 (B), the movement speed of the middle figures b4 and the movement speed of the substance character 94 are coincided mostly. If it carries out like this, it seems to make it move, while the substance character 94 will bite the middle figures b4, if it sees from a game person. In the example of drawing 16 (B), it seems to move, while the substance character 94 bites the middle figures b4 "5." While suspending change of a pattern group by performing Step S86 further after that, a motion of the substance character 94 is stopped. The timing of a stop may be in agreement and may differ. Since the virtual character 98 was moved towards the position in which the substance character 94 is and the substance character 94 was moved after that, the picture and movable body of an alligator which were imitated are interlocking. In this way, since the picture of an alligator and the linkage of a movable body which were imitated change to Oshi more, the game person who looks at the special pattern display for indication 64 is not bored more.

[0057]If according to the above-mentioned Embodiment 2 it corresponds to Claim 3 and the substance character 94 (movable body) enters in the viewing area of the special pattern display for indication 64, The display control board 200 (display control part) changes the middle figures b4 (special pattern; picture), or the main control substrate 100 (motion-control part) moves the substance character 94 {refer to Step S82 shown in drawing 14, S84, drawing 15, and drawing 16}. While the substance character 94 bites the middle figures b4, it moves, and change of the middle figures b4 concerned and a motion of the substance character 94 are visible, namely, seem to have done the dynamic operation. Signs that a dynamic operation is actually exerted on the middle figures b4 (picture without substance) from the impossible substance character 94 (movable body with substance) by this control can be directed. Therefore, since linkage of the substance character 94 and the middle figures b4 changes to Oshi more, the game person who looks at the special pattern display for indication 64 (picture display part) is not bored more.
[0058]It can also make it the same to direct signs that a dynamic operation is exerted on the substance character 94 (movable body with substance) from the middle figures b4 (picture without substance). in drawing 16 (B) -- Drawings above (the arrow D10 and a counter direction) -- the middle figures b4 and the substance character 94 -- speed -- about -- when it is made to do one and is made to move, it seems to pull up the substance character 94 which bit the middle figures b4. Even if these things replace the middle figures b4 with the left figures b2, the right figures b6, and the virtual character 98, they are the same. In addition, in addition, it is good to make it change so that the form of the middle figures b4 concerned may be crushed, when a part of substance character 94 which moves to a sliding direction is constituted so that an operation is possible (for example, opening and closing of a mouth are possible), or the substance character 94 bites the middle figures b4. Since a touch of reality will increase more if it carries out like this, pleasure of the game person who is looking also increases.
[0059]If it corresponds to Claim 1 and the display control board 200 (image control part) displays a reach pattern (necessary picture) in the viewing area of the special pattern display for indication 64, The main control substrate 100 (motion-control part) controls the motion which makes the substance character 94 (movable body) enter in the viewing area concerned {refer to Step S82 shown in drawing 14, S84, and drawing 16}. In this example, the display of a reach pattern is equivalent to necessary timing. Therefore, since linkage of the substance character 94 and a special pattern changes like Embodiment 1, the game person who looks at the special pattern display for indication 64 (picture display part) is not bored. So that it may furthermore correspond to Claim 2 and the motion of the substance character 94 and the change of a special pattern in the viewing area of the special pattern display for indication 64 may interlock, The display control board 200 changed the special pattern, and the main control substrate 100 moved the substance character 94 {refer to Step S82 shown in drawing 14, S84, and drawing 16}. Therefore, since linkage of the substance character 94 and a special pattern changes to Oshi more like Embodiment 1, the game person who looks at the special pattern display for indication 64 is not bored more. And when it corresponds to Claim 4 and the substance character 94 entered in the viewing area of the special pattern display for indication 64, the display control board 200 changed the special pattern, and related the change to the display of the specified pattern {refer to Step S82 shown in drawing 14, S84, and drawing 16}. Therefore, since it not only sees and enjoys signs that the substance character 94 and a special pattern interlock and move, like Embodiment 1, but the interlocking motion is related to privilege acquisition, the pleasure which looks at the situation concerned increases. In this case, if the virtual character 98 is made to appear and the substance character 94 is moved when the probability which is becoming it a great success is high, the game person who looked at the virtual character 98 grade can play a game with the hope which is becoming it a great success.
[0060][Other embodiments] In the pachinko machine 10 (game machine) mentioned above, it is not limited for the structure of other portions, form, a size, construction material, arrangement, and an

operating condition to the above-mentioned embodiment. For example, each of following forms adapting the above-mentioned embodiment can also be carried out.
(1) According to each above-mentioned embodiment, this invention was applied to the pachinko machine 10. It can replace with this form and this invention can be applied also like what is other game machines (for example, a slot machine, a pachislot machine, a ball arranging machine, a mahjong ball game machine, a video game machine, etc.) other than a pachinko machine, and was provided with the picture display part and the movable body at least. being concerned -- others -- since a picture changes according to a motion of a movable body even if it is a game machine, the game person who looks at a picture display part is not bored.
[0061](2) According to the above-mentioned Embodiment 1, the hammer 68 which can move reciprocately to a sliding direction as a movable body was applied. It may replace with this form and the putter 99 which imitated the thing that rotational movement is possible and for golf may be applied. Rotational movement of the putter 99 concerned is realizable by composition shown, for example in drawing 3. What is necessary is to attach the putter 99 to the rotation member 90 instead of the hammer 68, and just to more specifically arrange the solenoid 86, a torque transmission mechanism, etc. almost in parallel with the special pattern display for indication 64. The main control substrate 100 can control angle of rotation, revolving speed, etc. of the putter 99 by performing reach processing shown in drawing 14. Here, it explains, referring to drawing 17 and drawing 18 for the example which interlocks rotational movement of the putter 99, and a motion of a picture.
[0062]In this example, if it becomes reach in a reach pattern "77", while eliminating a special pattern temporarily to the viewing area of the special pattern display for indication 64, the green 302 of a golf course will be imitated and displayed (refer to drawing 17 (A), drawing 17 (B), drawing 17 (C), and drawing 18 (A)). There is the cup 304 in this green 302. As shown in drawing 17 (A), after the golf ball 300 by which the shot was carried out stops on the green 302, If it begins to make a prescribed direction (for example, arrow D12 direction) rotate the putter 99 from the reference position shown in drawing 17 (A), the putter 99 concerned will enter in a viewing area like drawing 17 (B) and drawing 17 (C). If it furthermore continues rotating the putter 99, as the golf ball 300 which had stopped on the green 302 as shown in drawing 17 (C) was hit, it is begun to move the golf ball 300 concerned. If it goes into the cup 304 as the golf ball 300 shows drawing 18 (A), as shown in drawing 18 (B), while returning the putter 99 to a reference position, a necessary picture will be displayed on a viewing area. That is, with the character "great success", the special pattern "777" is displayed on the variable region a2, a4, and a6 as the left figures b2, the middle figures b4, and the right figures b6, respectively.
[0063]If it carries out like this, a big hit notice can be directed by linkage with a picture and a movable body. Since a dynamic operation which exerts the movement power accompanying rotational movement of the putter 99 on the golf ball 300 can be expressed, it seems to a game person that the putter 99 of substance has hit the golf ball 300 of imagination without substance. Thus, since it was made for the golf ball 300 to move according to a motion of the putter 99, the game person who looks at the special pattern display for indication 64 is not bored. If the presentation display of such linkage is performed, it is visually intelligible, and the action state is interesting, seeing the motion. Such a dynamic operation can apply similarly not only the example to strike (it strikes) but other natural phenomena (for example, it drops [pulling / to push /, taking up and down,]) to a **** case. For example, a balloon is displayed as a picture and the components (a needle, a spear, etc.) in which the point sharpened are provided so that reciprocating movement is possible. And if a balloon is poked by the component in which the point sharpened, a picture will be changed so that a balloon may explode. The above-mentioned effect can be acquired also in this case.
[0064](3) patterns (a chance pattern, the Fig. 4 handle, an ornament pattern, etc.) other than the special pattern displayed with the special pattern display for indication 64 although the special

pattern (the left figures b2, the middle figures b4, right figures b6) was applied as a picture in each above-mentioned embodiment -- it usually displays by the pattern display 72 -- a pattern etc. may usually be applied. Since a movable body is interlocked with and it changes even if it is these pictures, the game person who looks at the special pattern display for indication 64 is not bored. Although the special pattern display for indication 64 was applied as a picture display part, the pattern display 72 and other displays for indication may usually be applied. Even if it is these displays for indication, change of a picture and the motion of a movable body which are displayed on the display for indication concerned can be interlocked. Therefore, the game person who usually looks at the pattern display 72 and other displays for indication is not bored. although the special pattern display for indication 64 all boiled mostly the viewing area into which a movable body enters and it was applied (see drawing 12 (B), drawing 16 (A), drawing 17 (C), etc.), it is good also as some viewing areas of the special pattern display for indication 64, and good also as a viewing area of other displays for indication. It is possible to apply not only to one viewing area but to two or more viewing areas. It controls by the example which has a viewing area of 2 as follows. That is, change of the picture displayed on the viewing area concerned is interlocked with, and a movable body is made to enter in one viewing area. The picture displayed on the viewing area of another side at this time may be independently displayed as a motion of a movable body, or may be interlocked with a motion of a movable body and may be displayed. Since linkage of a movable body and a picture will change to Oshi more if it carries out like this, the game person who looks at the special pattern display for indication 64 is not bored more.

[0065](4) According to each above-mentioned embodiment, it realized as one of the reach patterns which performs linkage with a picture and a movable body after reach (refer to drawing 8 and drawing 14). it may replace with this form (or -- adding), and linkage with a picture and a movable body may be realized about all the modes which can be displayed with the special pattern display for indication 64 like change of the pattern group performed before reach, and the animation displays (ornament pattern etc.) in a probability variation and big hit games. For example, in change of a pattern group performed before reach, when the probability which becomes reach increases, a picture and a movable body will be interlocked (if necessary timing is reached). Since linkage of a movable body and a picture will change to Oshi more if it carries out like this, the game person who looks at the special pattern display for indication 64 is not bored more. The game person can play a game with the hope which becomes reach, a probability variation, etc.

[0066](5) According to each above-mentioned embodiment, when the movable body (the hammer 68, the substance character 94, putter 99 grade) of 1 was moved, the motion was interlocked with and the picture was displayed on the picture display part (special pattern display for indication 64) of 1. It replaces with this form, a motion of the movable body of 1 may be interlocked with, a picture may be displayed on two or more picture display parts, a motion of two or more movable bodies may be interlocked with, and two or more pictures may be displayed on the picture display part of 1. A movable body may apply other arbitrary movable bodies in which the motion which enters not only into the hammer 68, the substance character 94, and the putter 99 but into a viewing area is possible. For example, as a mode which is interlocked with a motion of two or more movable bodies, and displays two or more pictures on the picture display part of 1, two or more substance characters 94 shown in drawing 13 are formed to the complex device 14 shown in drawing 2. And before being becoming it a great success, two or more substance characters 94 are moved, and the hammer 68 is moved by the re change after great success. Since the interlocking mode of a picture and a movable body will be diversified if it carries out like this, the pleasure which looks at signs that it interlocks and moves can be given to a game person more. It is good also as composition interlocked and moved so that a movable body may receive an operation in a target on the other hand by the picture displayed on a picture display part. For example, two or more entrances 92a with which the complex device 14 was equipped, and same entrances are provided lining up side-by-side, and the motion which a mole (substance character) comes out from two or more entrances

concerned, respectively, or withdraws constitutes possible. and the hammer imitated and displayed on the picture display part -- either -- the animation which strikes arbitrary moles is displayed. The mole is retracted when it can be recognized as having hit the mole in which it saw from the game person and the hammer of the picture display part came out from the entrance. In this way, since the mode to which a movable body moves to compensate for change of a picture is realized, the game person who looks at a picture display part is not bored.

[0067](6) According to each above-mentioned embodiment, the special pattern display for indication 64 which makes light emit (coloring) and displays a picture was applied as a picture display part. It can replace with this form and mechanical displays for indication, such as a drum display which displays the picture expressed with the display surface, can also be applied as a picture display part. For example, a drum display has 1 or two or more solids of revolution, arranges two or more pictures on the surface (namely, display surface) of the solid of revolution appropriately, and expresses them with it. In this way, the part where a game person can recognize the picture expressed with the solid of revolution is equivalent to a viewing area. And change of a pattern group, etc. are realized by carrying out the roll control of the solid of revolution for positive rotation, counterrotation, reciprocal rotation, revolving speed, etc. with drivers, such as a motor. If according to this composition you make it a motion of a movable body interlocked with and the roll control of a solid of revolution is performed, the picture in a viewing area can be changed. Therefore, the game person who looks at a picture display part is not bored.

[0068]

[The mode of other invention] As mentioned above, although the embodiment of the invention was described, in this embodiment, it has not only the mode of invention indicated to Claims but a mode of other invention. While enumerating the modes of this invention below, related explanation is given if needed.

[0069][Mode 1] A picture display part provided with the viewing area which can display a picture, and the image control part which controls the display of said picture, The game machine which has a movable body in which the motion which enters in said viewing area is possible, and a motion-control part which will control the motion which makes said movable body enter in said viewing area if said image control part displays a necessary picture on said viewing area.

[Related explanation of the mode 1] According to this mode, if an image control part displays a necessary picture on a viewing area, a motion-control part will control the motion which makes a movable body enter in the viewing area concerned. When a movable body enters in a viewing area, it seems to a game person that a picture and a movable body interlock with reality and move within the viewing area concerned. Since a motion of such a movable body will be performed if a necessary picture is displayed on a viewing area, change arises according to the contents of the picture. In this way, since a picture changes according to a motion of a movable body, the game person who looks at a picture display part is not bored.

[0070][Mode 2] The game machine to which a motion-control part will move a movable body if necessary conditions are fulfilled in the game machine indicated in any 1 clause or the above-mentioned mode 1 of 5 from Claim 1.

[Related explanation of the mode 2] According to this mode, a motion-control part moves a movable body only after fulfilling necessary conditions, and linkage of the movable body concerned and picture is realized. Since the game person can know having fulfilled necessary conditions when linkage of a movable body and a picture is seen, he can report the privilege etc. which are given to the game performed when necessary conditions are fulfilled, and a game person. In the meaning, linkage of a movable body and a picture serves as an alarming means. Therefore, the information to a game person can be transmitted more certainly. "Necessary conditions" is conditions appropriately defined according to the kind of game machine, time, a game position, etc., it may fix and the conditions concerned may change them. For example, there are conditions, like that a game ball wins a prize or passes to a predetermined region or a special pattern when it becomes it a great

success is a specified pattern.
[0071]
[Effect of the Invention]Since a picture changes according to a motion of a movable body according to this invention, the game person who looks at a picture display part is not bored.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention]This invention relates to the game machine provided with the picture display part and the movable body at least.

[Translation done.]

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PRIOR ART

[Description of the Prior Art]In an image display unit, it is begun to fluctuate a pattern group in the pachinko machine which is one of the game machines, in two or more variable regions, if a pachinko ball wins a prize of predetermined regions (for example, a gate, a start opening, etc.) or it passes, respectively. The upset condition of such a pattern group is called "pattern fluctuation." And a privilege will be given to a game person, if change of a pattern group is suspended and a specified pattern is displayed on an image display unit as a result, after beginning pattern fluctuation and carrying out for a while.
[0003]By the way, only from the production by change and a stop of a pattern group, a display will become monotonous and a game person will get it bored to see an image display unit. The technology for solving this problem is indicated by JP,H8-229204,A and JP,H8-141161,A. It constitutes from technology indicated by the gazette concerned so that the movable body provided in the specified position may rotate according to a picture. Since not only change of a picture but a motion of a movable body is added according to this composition, the game person can play a game, seeing and enjoying signs that a picture and a movable body interlock and move.

[Translation done.]

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EFFECT OF THE INVENTION

[Effect of the Invention]In this invention, a picture changes according to a motion of a movable body.
Therefore, the game person who looks at a picture display part is not bored.

[Translation done.]

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TECHNICAL PROBLEM

[Problem to be solved by the invention]However, the movable body provided in the specified position with the technology indicated by the gazette concerned only rotates according to a picture, and it is only one mode of a mere ornament deficiently in change. That is, a picture does not influence positively to a movable body conversely, without a movable body influencing positively to a picture. If it is got used to seeing a few, a game person will get bored with linkage of a picture and a movable body. The picture where this invention is made in view of such a point and which does not have a movable body with substance and substance aims at changing linkage of a movable body and a picture and making it not bore a game person by production which interlocks within a viewing area.

[0005]
[The means for solving a technical problem 1] The means for solving a technical problem 1 is as having indicated to Claim 1. Here, about the term indicated to Claim 1, it interprets as follows. The same can be said for the claim of others [interpretation / concerned], and the detailed description of the invention.
(1) All the things which can be displayed on a picture display part are included in "picture" like a special pattern and not only patterns usually, such as a pattern and an ornament pattern, but an image, and text.
(2) Not only all of the fields which can be displayed by a picture display part but a part of field concerned is included in "viewing-area."
(3) "picture display part" is good also as a display for indication (display device) of 1, and may consist of two or more displays for indication. The "viewing area" at the time of constituting from two or more displays for indication consists of all or a part of viewing areas of each display for indication.
(not only operation that a movable body enters so that it may see from the transverse plane of a game machine and may lap on a viewing area as 4) "a motion which enters in a viewing area" but operation to which the movable body which has moved from the outside of a picture display part changes and enters into the picture which imitated the movable body within a viewing area is included. "A motion which enters in a viewing area at least" is the meaning which includes arbitrarily not only the motion that enters in a viewing area but the motion within a viewing area, the motion which comes out out of a viewing area, etc.
[0006]According to the means 1 concerned, if a motion-control part moves a movable body, the motion will be interlocked with and an image control part will display a picture on a viewing area. At this time, a movable body moves within and without a viewing area, or comes out [entering in a viewing area ****, or] out of a viewing area. If it sees from a game person, a motion of a movable body will be interlocked with and a picture will change. Therefore, since a picture changes according to a motion of a movable body, the game person who looks at a picture display part is not bored.
[0007]

[The means for solving a technical problem 2] The means for solving a technical problem 2 is as having indicated to Claim 2. The mode which begins change of a pattern group is also included from the mode which suspends change of not only the mode that only changes a certain picture into other pictures for here, the term indicated to Claim 2 "changing a picture" but a pattern group, and a stopped picture. The same can be said for the claim of others [interpretation / concerned], and the detailed description of the invention.

[0008]According to the means 2 concerned, an image control part changes a picture and a motion-control part moves a movable body so that the motion of a movable body and the change of a picture in a viewing area may interlock. That is, a movable body will move according to the picture which the picture changed according to the movable body which moved within the viewing area, or changed within the viewing area conversely. Therefore, since linkage of a movable body and a picture changes to Oshi more, the game person who looks at a picture display part is not bored more.

[0009]

[The means for solving a technical problem 3] The means for solving a technical problem 3 is as having indicated to Claim 3. The term indicated to Claim 3 here

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[Translation done.]

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OPERATION

"A dynamic operation" is an operation which imitates [to strike (it strikes)] a natural phenomenon like dropping [which is taken / which is pulled / to push / up and down]. The same can be said for the claim of others [interpretation / concerned], and the detailed description of the invention.
[0010]According to the means 3 concerned, if a movable body enters in a viewing area, an image control part will change a picture or a motion-control part will move a movable body. It is made visible [change of the picture concerned or a motion of a movable body] in either the movable body or a picture having done the dynamic operation to another side. Signs that exert a dynamic operation on a picture without substance from the movable body which has impossible substance actually by such control, or a dynamic operation is exerted on the movable body which has substance from the picture which does not have substance conversely can be directed. Therefore, since linkage of a movable body and a picture changes to Oshi more, the game person who looks at a picture display part is not bored more.
[0011]
[The means for solving a technical problem 4] The means for solving a technical problem 4 is as having indicated to Claim 4. The mode which begins change of a pattern group is also included from the mode which suspends change of not only the mode that only changes a certain pattern into other patterns the same with "a picture is changed" for here, the term indicated to Claim 4 "changing a pattern" but a pattern group, and a stopped pattern. The same can be said for the claim of others [interpretation / concerned], and the detailed description of the invention.
[0012]According to the means 4 concerned, an image control part changes a pattern and a motion-control part moves a movable body so that the motion of a movable body and the change of a pattern in a viewing area may interlock. That is, a movable body will move according to the pattern which the pattern changed according to the movable body which moved within the viewing area, or changed within the viewing area conversely. If it carries out like this, since it not only sees and enjoys signs that a movable body and a pattern interlock and move, but the interlocking motion is related to privilege acquisition, the pleasure which looks at the situation concerned will increase.
[0013]
[Mode for carrying out the invention]Hereafter, the embodiment in this invention is described based on Drawings.
[Embodiment 1] Embodiment 1 is the example which applied this invention to the pachinko machine provided with the hammer as a movable body. The Embodiment 1 concerned is described referring to drawing 1 - drawing 12.
[0014]A front view shows the appearance of the pachinko machine 10 equivalent to a game machine to drawing 1. On the game board surface 12 of the pachinko machine 10 shown in drawing 1, The pachinko ball to pass. The gate sensors 22 and 48 to detect. The gates 24 and 46 which it has, respectively, and the pachinko ball which won a prize. The start opening sensor 50 to detect. the big prize port 26 which has the V zone 44 which can continue a big-hit-games state within the number

of times of necessary (for example, 16 times) if the 1st type start opening 20 and pachinko ball which it has win a prize within a big prize port opening period (for example, for 20 seconds) -- so that it may mention later. The hammer 68, the complex device 14 which usually has the pattern display 72 and special pattern display-for-indication 64 grade and other general prize ports, a windmill, a nail, etc. are arranged suitably. The big prize port 26 has the lid 60 opened and closed by the solenoid 42. The lower start opening 56 which has the start opening sensor 54 which detects the pachinko ball which won a prize under this big prize port 26 is established. The lower start opening 56 concerned is provided with a function equivalent to the 1st type start opening 20. The 1st type start opening 20 and the lower start opening 56 will pay out awarded balls like the usual prize port, if a pachinko ball all wins a prize.

[0015]The complex device 14 shown in drawing 2, The hammer 68 and common pattern which reciprocating movement constituted possible in the sliding direction focusing on the pivot 70 are changed or stopped. The common pattern display 72 and picture to display. It has the special pattern display for indication 64 to display, the reserved ball lamp 62 which usually displays the number of a pachinko ball which passed through the gates 24 and 46 during change of a pattern, and the reserved ball lamp 66 grade which displays the number of the pachinko ball which won a prize of the 1st type start opening 20 or the lower start opening 56 during change of a special pattern. Hereafter, the number which can be recognized by the display of the reserved ball lamp 66 is called "the number of reserved balls." Change starts and the pattern display 72 usually stops after specified time elapse, when it consists of two or more photogens (for example, LED which emits green and LED which emits red) and a pachinko ball passes to the gates 24 and 46. It changes by specifically blinking a photogen. And if a specific photogen (for example, red LED) stops in the state of switching on the light or putting out the light, only fixed time (for example, for 4 seconds) will open the lid of the lower start opening 56.

[0016]The special pattern display for indication 64 equivalent to a picture display part displays special patterns (for example, a pattern, an alphanumeric character, a sign, etc.), an ornament pattern, etc. as a picture using a liquid crystal display. If a pachinko ball wins a prize of the 1st type start opening 20 or the lower start opening 56, it is begun to change the special pattern displayed on this special pattern display for indication 64, and it stops after specified time elapse.Although the liquid crystal display was used as the special pattern display for indication 64, what kind of display for indication which can display a picture may be used like CRT, a LED display device, and a plasma display. Although the pattern display 72 and the special pattern display for indication 64 were usually used separately, it is good also as what makes both sides serve a double purpose with the same display for indication. The reserved ball lamps 62 and 66 consist of a photogen (for example, four LED) of plurality [each].

[0017]The example of composition for moving the hammer 68 equivalent to a movable body is shown in drawing 3. A motion is controlled by the main control substrate 100 which the solenoid 86 which has the rod 84 which can move in the arrow D4 direction (Drawings longitudinal direction) to illustrate mentions later. The power generated in the solenoid 86 is transmitted to the hammer 68 through a torque transmission mechanism, and makes the hammer 68 move reciprocately to an arrow D 2-way (Drawings sliding direction). Hereafter, the example of a torque transmission mechanism is explained. The engaging member 76 is formed in the point of the rod 84 via the coupling member 82. The engagement piece 78 which engages with this engaging member 76 is formed in the rotor plate 74 which rotates focusing on the pivot 80 (any of positive rotation, counterrotation, and reciprocal rotation may be sufficient, and rotation is included). The fan board 88 is mostly formed in an opposite hand to the pivot 80 at the rotor plate 74 at one, and a gear tooth is formed in the circle (periphery) part of the fan board 88 concerned. The hammer 68 is fixed to the rotation member 90 rotated focusing on the pivot 70, and the gear tooth of the above-mentioned fan board 88 and the gearing gear tooth are formed on the circumference of the rotation member 90 concerned. According to this mechanism, the advance and retreat movement of the rod 84 is

changed into rotation [both-way] rotational movement centering on the pivot 80 through the engaging member 76 and the engagement piece 78. If this rotational movement gets across to the hammer 68 via a gear tooth and is seen from the transverse plane of the pachinko machine 10, the hammer 68 will move reciprocately to a sliding direction focusing on the pivot 70. A torque transmission mechanism is good also not only as the composition mentioned above but other composition. Other drivers (for example, motor etc.) which replace the solenoid 86, and the transmission parts (for example, a belt, a chain, a rack & pinion, etc.) replaced with a gear tooth may specifically be used, and a torque converter etc. may be used further. It may constitute so that the hammer 68 may be made to exercise directly with drivers, such as the solenoid 86 and a motor.
[0018]Return to drawing 1 and down the game board surface 12 in the pachinko machine 10, It has the handle 32 provided with the ash pan 38 into which the lower dish 36 which stores temporarily the pachinko ball containing awarded balls, the cigarette end of tobacco, etc. are put, and the touch sensor 34 which detects whether the game person's hand is touching, the loudspeaker 40 which has provided in the inside of the top plate 30 which is a saucer of awarded balls, and takes out a sound effect, music, etc., etc. It has the lamps 16 which consist of a photogen arranged at the suitable position according to the frame opening sensor 28 which detects opening of the glass frame 18, the game content of the pachinko machine 10, etc.
[0019]Next, the main control substrate 100 (motion-control part) which realizes the pachinko game by the pachinko machine 10, It explains referring to drawing 4 in which these outline composition was shown for the display control board 200 (image control part) which displays a picture on the special pattern display for indication 64 in response to the display command sent from the main control substrate 100. These main control substrates 100 and display control boards 200 are provided in the back side of the pachinko machine 10. The main control substrate 100 shown in drawing 4 is constituted focusing on CPU(processor) 110, A game control program and necessary game data. (For example, a great success value) etc. ROM112, various kinds of random numbers, data, an input output signal, etc. to store. RAM114 to store and the signal sent from various kinds of input devices. The input processing circuit 102 which is received and is changed into the data format which can be processed within the main control substrate 100, the output processing circuit 104 which operates various kinds of output units in response to the operation data sent from CPU110, and the indicative data sent from CPU110. It has the display control circuit 106 which wins popularity and displays various kinds of display objects suitably (lighting and putting out lights are included), and communication control circuit which transmits necessary data to display control board 200 116 grade. Each of these components is mutually combined with the bus 118.
[0020]Although CPU110 executes the game control program stored in ROM112 and the game by the pachinko machine 10 is realized, the program for realizing the 1st type start opening processing etc. which are mentioned later is also included in the game control program concerned. Although DRAM is used for RAM114 ROM112 using EPROM, the memory of other kinds may be used. being concerned -- others -- there are EEPROM, SRAM, a flash memory, etc. as a memory of a kind. As an input device with which the input processing circuit 102 receives a signal, there are the start opening sensors 50 and 54, the gate sensors 22 and 48, a prize sensor (V zone sensor 52 grade), or other sensors (the touch sensor 34, frame opening sensor 28 grade), for example. As an output unit with which the output processing circuit 104 outputs a signal, there are the solenoid 42 and 86 grades, for example. As a display object which the display control circuit 106 displays, there is the lamps 16, the reserved ball lamps 62 and 66, or common pattern display 72 grade, for example. The communication control circuit 116 can transmit necessary data also to a frame control board, a hall computer, etc. which are not illustrated further if needed.
[0021]Next, the display control board 200 is constituted focusing on CPU210, RAM204 which stores ROM202 which stores a display control program and necessary indicative datas (for example, display information, two or more variation patterns, etc. corresponding to a display command), a display command, display information, an input output signal, etc., and the data transmitted from the main

control substrate 100. It has the VDP(Video Display Processor)214 grade which processes and displays a picture to the special pattern display for indication 64 in response to the communication control circuit 206 received and carried out, the character generator 212 which generates a necessary picture, and the display information sent from CPU210. Each of these components is mutually combined with the bus 208.

[0022]Although CPU210 executes the display control program stored in ROM202 and a picture is displayed on the special pattern display for indication 64, the program for realizing picture display processing etc. which are mentioned later is also included in the display control program concerned. Although DRAM is used for RAM204 ROM202 using EPROM, the memory of other kinds may be used. being concerned -- others -- there are EEPROM, SRAM, a flash memory, etc. as a memory of a kind. The communication control circuit 206 can transmit necessary data also to a frame control board, a hall computer, etc. which are not illustrated further if needed. As a picture which the character generator 212 generates, there are animations, such as characters (an alphanumeric character, a Chinese character, etc.), patterns (a special pattern, an ornament pattern, etc.), and animation, Still Picture Sub-Division, an image, etc., for example. VDP214 which has VRAM, palette RAM, etc., The data of the character corresponding to display information, a pattern, a background, etc. is generated and read with the character generator 212, and after performing image editings, such as color scheme specification and sprite processing, and carrying out data expansion to VRAM or palette RAM, a video signal, a synchronized signal, etc. are eventually outputted to the special pattern display for indication 64.

[0023]In the pachinko machine 10 constituted as mentioned above, in order to realize this invention, the procedure performed by the main control substrate 100 or the display control board 200 is explained with reference to drawing 5 - drawing 10. Here, a flow chart shows the contents of the reach processing of the contents of the fluctuation displaying processing of the contents of the pattern fluctuation processing of the contents of the 1st type start opening processing to drawing 6 to drawing 7 to drawing 8, the contents of interlocking change processing, and the contents of picture display processing to drawing 9 at drawing 5 at drawing 10, respectively. The 1st type start opening processing, pattern fluctuation processing, fluctuation displaying processing, reach processing, and interlocking change processing among such procedure, CPU110 executes the game control program stored in ROM112 in the main control substrate 100 shown in drawing 4 to suitable timing (for example, cycle in every 4 milliseconds), and all are realized. In the display control board 200, to suitable timing, CPU210 and VDP214 execute a program and realize picture display processing. Time Measurement Division required for the synchronization etc. of the hammer 68 and pictures (a special pattern, an ornament pattern, etc.) which are mentioned later is performed by counting the execution frequency concerned, whenever it executes a program with the cycle in every 4 milliseconds mentioned above. Although "it adds" as used in the following explanation means that only 1 usually increases the number of reserved balls, the case where it increases two or more [every] suitably according to a game position etc. is included. On the other hand, it is the same as that of the case where it adds except for the point of reducing the number of the reserved balls "to subtract." Since the 1st type start opening 20 and the lower start opening 56 function similarly, in order to explain simply, they make the 1st type start opening 20 an example, and are explained. As an example of the picture displayed on the special pattern display for indication 64, three variable regions (a left-hand side side, the inside side, right-hand side) are divided, a pattern group is changed, respectively, and the mode which stops middle figures to the variable region by the side of inside, and stops right figures for left figures to a right-hand side variable region is applied to a left-hand side variable region.

[0024]The 1st type start opening processing shown in drawing 5 realizes winning-a-prize distinction of a pachinko ball to the 1st type start opening 20. First, it is distinguished whether the pachinko ball won a prize of the 1st type start opening 20. [Step S10] .if a detecting signal is specifically received from the start opening sensor 50 in drawing 4 -- having won a prize (YES) -- it distinguishes and

distinguishes from (NO) which has not won a prize if the detecting signal concerned is not received. If a pachinko ball wins a prize of the 1st type start opening 20, it will be distinguished whether the number of reserved balls reached upper limit (for example, 4). [Step S12] .If the number of reserved balls has not reached upper limit, (NO) and its number of reserved balls are added. [Step S14] .LED of the reserved ball lamp 66 is turned on according to the added number of reserved balls. Then, it is a deed about reading and memory of various random numbers. [Step S16] The 1st type start opening processing is ended. When the pachinko ball has not won a prize of the 1st type start opening 20 (NO of Step S10), or when the number of reserved balls reaches upper limit (YES of Step S12), the 1st type start opening processing is ended as it is, without doing anything.

[0025]Random number RA for a great success judging, the random number RB for big hit patterns, reach pattern random number RC, random number RD for probability variations, etc. are among the various random numbers which are read at Step S16 here and memorized to RAM114. Random number RA for a great success judging is used in order to distinguish whether it is great success. When distinguished from great success by random number RA for a great success judging, since the big hit pattern (a specified pattern should put together) stopped and displayed on the special pattern display for indication 64 is specified, the random number RB for big hit patterns is used. Since a display pattern after reaching reach until it suspends change is specified according to the reach pattern (a prescribed pattern should put together) etc. which were displayed on the special pattern display for indication 64, reach pattern random number RC is used. "Reach" or a "reach condition" means the state where other special patterns are in agreement with a reach pattern, except for the remaining special patterns still changed. Random number RD for probability variations is used in order to distinguish whether the probability which is becoming it a great success is changed after being becoming it a great success.

[0026]The pattern fluctuation processing shown in drawing 6 realizes the display which changes for it or stops a pattern group to the special pattern display for indication 64. It is distinguished first whether the number of reserved balls is a positive number (that is, number of reserved balls >0 is filled). [Step S20] .When the number of reserved balls is a positive number, while reading (YES) and random number RA for a great success judging memorized at the above-mentioned step S16 [Step S22] The number of reserved balls is subtracted in preparation for next processing. [Step S24] .LED of the reserved ball lamp 66 is turned on according to the subtracted number of reserved balls. And fluctuation displaying processing is performed. [Step S26] .The concrete contents of fluctuation displaying processing are explained referring to drawing 7.

[0027]The fluctuation displaying processing shown in drawing 7 realizes a display since it begins to change a pattern group, until it stops. It is distinguished first whether it is "great success." [Step S40] .It distinguishes by whether random number RA for a great success judging read at the above-mentioned step S22 was specifically in agreement with the great success value. Although a great success value is usually one piece, suppose two or more according to a game position (for example, probability variation) etc. It is reading about the random number RB for big hit patterns memorized at Step S16 of (YES) and drawing 5 when distinguished from "great success." [Step S42] It progresses to Step S44 mentioned later that it should be begun to fluctuate a pattern group. According to the value of the random number RB for big hit patterns concerned, the pattern (it calls the following "stop schedule pattern".) which is due to stop eventually and to be decided is determined. When distinguished from a "blank" at Step S40, in order to display (NO) and a blank pattern on the special pattern display for indication 64 on the other hand, after shifting and reading pattern data from RAM114 [Step S60] It is distinguished whether a reach pattern is included in the blank pattern concerned. [Step S62] .The combination of left figures and right figures corresponds and a reach pattern is the same pattern (what is called a Zorro eye) in the usual pachinko machine 10. Supposing it includes a reach pattern (YES), it will progress to Step S44 later mentioned since reach is reached on the way, although it becomes a "blank" eventually. If a reach pattern is not included, it progresses to (NO) and Step S64 mentioned later.

[0028]After sending a display command to the display control board 200 and beginning to change a pattern group [Step S44] Reach processing is performed. [Step S46] .It supposes that the processing performed by the display control board 200 is mentioned later, and it explains, referring to drawing 8 for the concrete contents of reach processing first. The reach processing shown in drawing 8 realizes change based on a reach display and a reach pattern. It is reading about reach pattern random number RC first memorized at Step S16 of drawing 5. [Step S70] A reach pattern is determined. [Step S72] .A decision of a reach pattern is made according to Table 1 shown below based on the stop schedule pattern determined, for example at Step S42 (or step S60) of drawing 7, and reach pattern random number RC read at Step S70 of drawing 8. The example of setting out of the relation of a pattern and reach pattern random number RC which can take ones from 0 to 10 of numerical values is shown in the table 1 concerned. The relation of a pattern is a gap of the pattern between a reach pattern and middle figures, and it divides into other patterns (for example, 3 pattern front, after 3 patterns, etc.) in consideration of the changing direction before 2 patterns and 1 pattern and after same pattern and 1 pattern and 2 patterns. For example, if middle figures are a pattern "6" when a reach pattern is a pattern "7", the middle figures seen from the reach pattern will become "1 pattern front."

[0029]

[Table 1]

図柄の関係＼乱数値	0	1	2	3	4	5	6	7	8	9	10
2図柄前	α	α	α	α	β	γ	γ	δ	δ	δ	ζ
1図柄前	α	β	β	γ	γ	γ	δ	δ	ζ	ζ	ζ
同一図柄	α	β	γ	γ	γ	δ	δ	δ	ε	ε	ζ
1図柄後	α	β	β	γ	γ	δ	δ	δ	ζ	ζ	ζ
2図柄後	α	α	α	α	β	γ	γ	δ	δ	δ	ζ
他の図柄	α	α	α	α	α	α	α	β	β	δ	ζ

[0030]In the example of the above-mentioned table 1, the six reach patterns alpha, beta, and gamma, delta, epsilon, and zeta are set up. For example, after being after reaching reach, and middle figures' stopping and displaying a big hit pattern, Let the reach pattern (it calls the following "interlocking change action".) in which the picture (change and a stop of a pattern group are included) immediately displayed on a motion and the special pattern display for indication 64 of the hammer 68 as a movable body interlocks, and one pattern of all the special patterns are changed at a time be the reach pattern beta. Here, the outline of each display information is illustrated to Table 2 about the reach pattern alpha, beta, and gamma, delta, epsilon, and zeta.

[0031]

[Table 2]

リーチパターン	表示内容の概要
α	ノーマルアクション
β	連動変動アクション
γ	再抽選アクション
δ	正逆変動
ε	移動位置で２回アクション
ζ	図柄の拡大アクション

[0032]"Action" shown in Table 2 is performing animation etc. With "re lottery action", after becoming a "blank" according to the stopped special pattern (left figures, middle figures, right figures), a pattern group is changed again in a variable region etc., and the re lottery of being great success is performed. "Right reverse change" is one mode of a stop, and centering on the specified position (for example, horizon passing through middle of the screen) of the special pattern display for indication 64, only a prescribed range (it is a part for a half-pattern to a sliding direction) shakes to a prescribed direction, and it moves a special pattern to it. A "movement zone" is a position on the screen in the special pattern display for indication 64, and it differs from the above-mentioned specified position in principle. "Expansion action of a pattern" means the state of expanding a reach pattern during change of middle figures, and displaying it.
[0033]setting out of the position of the reach pattern alpha, beta, and gamma in the above-mentioned table 1 when predetermined conditions are satisfied here, delta, epsilon, and zeta, the number, etc. -- also changing (making it change) -- it is good. As predetermined conditions, conditions may be appropriately changed according to the case where a special pattern stops in a specification pattern (it is a pattern "333", including the combination of a specified pattern and a specified pattern), for example, the kind of pachinko machine 10, time, etc. If it carries out like this, the game person can maintain until all the special patterns stop the hope which is becoming it a great success. If predetermined conditions are satisfied, the number of patterns, composition of a kind or a pattern group, etc. which are changed in a variable region may be changed. If it carries out like this, the mode of interlocking change action will change and the possibility of great success by execution of interlocking change action will become high by a case. Therefore, the game person can play a game with change of the display mode by interlocking change action with the hope which is becoming it a great success.
[0034]After determining a reach pattern, a display command is sent to the display control board 200, and a reach pattern is displayed on the special pattern display for indication 64. [Step S74] .Although a reach pattern is displayed on the special pattern display for indication 64, it may be displayed only on other displays for indication, and may be displayed on the both. Since a reach pattern etc. will be displayed also on displays for indication other than special pattern display-for-indication 64 if it carries out like this, it becomes easy to recognize what a reach pattern is. When displaying a reach pattern, it may report having reached reach further to a game person. As the information concerned, a character, predetermined animation, etc. of "reach" are displayed, for example, a sound and a specific sound effect are taken out from the loudspeaker 40, and there is a mode of vibrating the chair in which the handle 32 which a game person touches, and a game person sit down. If it carries out like this, the game person can recognize having reached reach more certainly.
[0035]Then, processing is divided by whether the reach pattern determined at Step S72 is the reach pattern beta (specific reach pattern). [Step S76] .At the time of reach patterns other than the reach pattern beta, it stops, after changing by the reach pattern which sent the display command to (NO)

and the display control board 200, and was determined as them at Step S72. [Step S80] .The settled middle figures are displayed on the special pattern display for indication 64 by this stop, and the special pattern (left figures, middle figures, right figures) in this lottery is decided. On the other hand, (YES of Step S76) and interlocking change processing are performed at the time of the reach pattern beta. [Step S78] .It explains referring to drawing 9 for the concrete contents of the interlocking change processing concerned.

[0036]The interlocking change processing shown in drawing 9 realizes linkage with the pictures (a special pattern, an ornament pattern, etc.) displayed on a motion and the special pattern display for indication 64 of the hammer 68 as a movable body. First, random number RA for a great success judging distinguishes whether it is great success like the above-mentioned step S40 depending on whether it is the no which is in agreement with a great success value. [Step S90] .(YES) and the following processings are performed at the time of great success. That is, the special pattern under change is stopped and a stop schedule pattern is displayed. [Step S92] The number of times (it calls the following "number of times of a re change".) n which performs a re change is determined. [Step S94] A stop schedule pattern is changed further. [Step S96] .A re change is a mode which synchronizes all the special patterns (left figures, middle figures, right figures) displayed in three variable regions, and is changed in the beginning at high speed, it is 2 times - 10 times of within the limits, and a decision of the number of times n of a re change is made based on a random number, a data table, etc. Although change of a stop schedule pattern determines the special pattern stopped eventually by the same method as the number of times n of a re change, consistency is aimed at between random number RD for probability variations, and the stop schedule pattern after change. For example, when it is a probability variation, the special pattern which is not a probability variation may be changed into a stop schedule pattern by random number RD for probability variations. In this case, the number of times n of a re change is adjusted (addition or subtraction), and it is made for the stop schedule pattern after change to turn into a special pattern of a probability variation. This is also the same as when it is not a probability variation by random number RD for probability variations.

[0037]And in order to direct so that the display screen of the special pattern display for indication 64 may be struck, after shaking the hammer 68 down [Step S98] A motion of the above-mentioned hammer 68 is interlocked with, and the background figure handle which is one of the ornament patterns and is displayed as a background of a special pattern is displayed. [Step S100] .A motion of the hammer 68 is realized by transmitting operation data to the solenoid 86 via the output processing circuit 104 from CPU110 shown in drawing 4. If a re change is furthermore begun about a special pattern [Step S102] The hammer 68 shaken down is flung up and it is made to return to an original position. [Step S104] .If the number of times n of a re change is not 0 (NO of Step S106), while suspending a re change in front of n pattern [Step S109] The number of times n of a re change is subtracted like the case of the number of reserved balls. [Step S108] Repeat execution of the above-mentioned steps S98-S104 is carried out. Therefore, while it is interlocked with that the hammer 68 swings down and changing a background figure handle, when performing the re change of a special pattern, the mode which flings up the hammer 68 will repeat only the number of times n of a re change. the special pattern displayed by this repetition at Step S109 -- the time of the number of times n= 7 of a re change -- "000" ->"111" ->"222" -> -- it changes with -> "777." Then, if the number of times n of a re change is set to 0 (YES of Step S106), a re change will be suspended in the stop schedule pattern changed at Step S96. [Step S107] Interlocking change processing is ended. If it is not great success at Step S90, it will separate from (NO, for example, middle figures), and will stop in a pattern. [Step S97] Interlocking change processing is ended. In this way, an end of interlocking change processing will also end the reach processing further shown in drawing 8.

[0038]Since a re change will be started whenever it shakes the hammer 68 down if the above-mentioned interlocking change processing is performed, a game person comes to look at a motion of the hammer 68, expecting to stop by a desirable special pattern. Since the number of times n of a re

change determined at Step S94 usually differs each time, the game person cannot predict by what time it stops eventually. That is, it cannot be predicted whether it stops by a big hit pattern without stopping by a big hit pattern with the privilege of a probability variation, or the privilege concerned. Therefore, with the pleasure which looks at the special pattern display for indication 64, the game person can do a re change after how many times, or can play a game to a thrill with a hope. Although the special pattern after great success is changed only once in interlocking display processing shown in drawing 9 (Step S96), lots are not necessarily cast [that it is great success and] in connection with the re change. In order to give the hope which expects privileges, such as a probability variation, from a game person, a special pattern may be changed in the case of a re change (each time or specific stage). Here, the time chart at the time of performing the above-mentioned interlocking change processing is shown in the following table.

[0039]

[Table 3]

時間（秒）	特別図柄	時間（秒）	背景図柄	時間（秒）	可動体（ハンマー）
0.00	全特別図柄が変動開始	0.00	通常変動時の表示開始	0.00	原位置で停止
6.77	左図柄が「0」で停止				
7.92	右図柄が「0」で停止（リーチ）	7.92	リーチ時の表示開始		
8.20	中図柄が低速に変化				
16.99	中図柄が「0」で停止（大当り決定）				
					（再変動1回目）
				19.05	ソレノイドONし、ハンマーが振り下ろされる。
19.15	全ての特別図柄が大きく揺れながら1図柄スクロール（「111」）	19.15	背景図柄全体が大きく揺れる	19.15	画面に当たる
				19.65	原位置に戻る
20.88	揺れが小さくなる	20.88	揺れが小さくなる		
21.17	揺れ停止	21.17	揺れ停止		
					（再変動2回目）
				21.35	ソレノイドONし、ハンマーが振り下ろされる。
21.45	全ての特別図柄が大きく揺れながら1図柄スクロール（「222」）	21.45	背景図柄全体が大きく揺れる	21.45	画面に当たる
				21.95	原位置に戻る
22.03	揺れが小さくなる	22.03	揺れが小さくなる	・	・
22.32	揺れ停止	22.32	揺れ停止	・	・
・	・	・	・	・	・
・	・	・	・	・	・
・	・	・	・	・	・
・	・	・	・	・	（再変動7回目）
・	・	・	・	27.98	ソレノイドONし、ハンマーが振り下ろされる。
・	・	・	・		
・	・	・	・	28.08	画面に当たる
・	・	・	・	28.58	原位置に戻る
・	・	・	・		
29.81	揺れ停止（最終的に大当り図柄「777」に確定）	29.81	揺れ停止		
	（終了）		（終了）		（終了）

[0040]The example of the above-mentioned table 3 shows a process until it stops the special pattern eventually settled from the fluctuation start of the pattern group corresponding to a special pattern, a background figure handle, and the hammer 68 (movable body). That is, the time of starting change of a pattern group is made into 0 second, and the mode performed after that is shown with lapsed time. When time is shown below, the lapsed time concerned is meant. Specifically the first special pattern "000" is stopped and displayed in 15.99 seconds, and a special pattern and a background figure handle are shaken in 19.15 seconds, or it sways [the hammer 68 is swung down

in 19.05 seconds, and], and this shake is stopped in 21.17 seconds. At this time, the special pattern is "111." 0.5 seconds after swinging down the swung-down hammer 68, it is returned. The motion and change before and behind that were beforehand decided on the basis of the timing to which, as for vibration of a special pattern and a background figure handle or a shake, the hammer 68 strikes a display screen. Such a hammer 68 is shaken, only the number of times n of a re change stops a shake in 29.81 seconds eventually repeatedly, and vibration of taking down, and a special pattern and a background figure handle displays the special pattern "777." Thus, since the game person cannot know the number of times which repeats the process in which a re change is carried out if the hammer 68 is swung down, a game person does not know whether it cannot be predicted when it stops eventually, and becomes a probability variation. Therefore, the game person can play a game, throbbing on a hope and a thrill.

[0041]After finishing reach processing, it returns to drawing 7 and it is distinguished whether it is a probability variation. [Step S48] .When distinguished from a probability variation, after performing (YES) and probability variation processing [Step S50] Fluctuation displaying processing is ended. Whether random number RD for probability variations which memorized whether it was a probability variation at Step S16 of drawing 5 is in agreement with a specified value performs. About the contents of probability variation processing, since it is well-known, explanation is omitted. If probability variation processing is performed, the probability which stops by a big hit pattern and is becoming it a great success after change will increase, and the fluctuation period of a special pattern will be shortened until it becomes next great success after this end of big hit games. The probability which hits after change, stops in a pattern and becomes a hit increases, and the fluctuation period of a pattern is usually shortened. On the other hand, if it is not a probability variation (NO of Step S48), fluctuation displaying processing will be ended, without doing anything. When it is not a reach pattern in Step S62, it is begun like (NO) and Step S44 here, to change a pattern group. [Step S64] After changing based on a predetermined variation pattern, it shifts and stops in a pattern. [Step S66] It progresses to the above-mentioned step S48. In the above-mentioned step S64 and S66, a display command corresponding, respectively is sent to the display control board 200, and it realizes.

[0042]The special pattern which returned to drawing 6 after finishing fluctuation displaying processing, was decided eventually, and was displayed on the special pattern display for indication 64 distinguishes whether it is in agreement with a big hit pattern. [Step S28] .Although it has distinguished whether it is great success also at Step S40 shown in drawing 7, this distinction is performed based on random number RA for a great success judging read at Step S22. However, in the time of performing fluctuation displaying processing of Step S26, etc., what wins popularity and serves as a great success display which was being planned may separate from the influence of an extraneous noise etc., and it may be displayed. Therefore, in order to prevent confusion of a pachinko game, priority is given to the special pattern displayed on the special pattern display for indication 64, and it distinguishes that it is great success. With the reliable pachinko machine 10, it may be distinguished at Step S28 whether it is "great success" only based on random number RA for a great success judging that it is hard to be influenced by an extraneous noise etc. If it carries out like this, processing speed will improve. If the settled special pattern is in agreement with a big hit pattern (YES), it will be a deed about great success processing as "great success." [Step S30] Pattern fluctuation processing is ended. Great success processing performs big hit games, such as only fixed time (for example, for 30 seconds) opening the lid 60 of the big prize port 26 wide, for example, and paying out awarded balls according to the number of the pachinko balls which won a prize. On the other hand, if the settled special pattern is not in agreement with a big hit pattern, as (NO) and a "blank", it is a deed about gap processing. [Step S32] Pattern fluctuation processing is ended. About the contents of blank processing, since it is well-known, explanation is omitted.

[0043]Next, the picture display processing as which the display control board 200 which received the display command sent from the main control substrate 100 performs an image editing, and

displays a picture on the special pattern display for indication 64 is explained, referring to drawing 10. The display command sent from the main control substrate 100 shall be memorized by the receive buffer provided in the RAM204 grade shown in drawing 4 with the separate processing program executed by reception interruption. It is reading about the display command which CPU210 memorized to the receive buffer first in the picture display processing shown in drawing 10. [Step S110] An indicative data is acquired based on the read display command, and it memorizes to RAM204. [Step S112] .An indicative data is acquired with reference to the data table which specified the relation between a display command and an indicative data, and was more specifically memorized in the ROM202 grade. This indicative data is a data element (parameter) for performing an image editing, for example, has a status number, a left-figures number, left position coordinates, a middle-figures number, an inside position coordinate, a right-figures number, the right position coordinate, an animation number, a status flag, an animation timer, etc. In this way, 210 which acquired the acquired indicative data transmits the indicative data concerned to VDP214.
[0044]VDP214 which received the indicative data from CPU210 extracts the data of a character, a pattern, a background, etc. from the character generator 212 based on the indicative data concerned. [Step S114] After performing image editings, such as color scheme specification and sprite processing [Step S116] Data is developed on VRAM or palette RAM. [Step S118] .And the developed data is changed into a picture signal and it outputs to the special pattern display for indication 64. [Step S120] .In this way, the pattern etc. which were edited based on the indicative data can be displayed on the special pattern display for indication 64. Since it carries out by VDP214 by making an image editing into hardware, a picture can be displayed at high speed.
[0045]Next, each processing shown in above-mentioned drawing 5 - drawing 10 is performed, and it explains, referring to drawing 11 and drawing 12 for the example which displays a picture on the special pattern display for indication 64, while moving the hammer 68. The example of the picture displayed on the special pattern display for indication 64 is shown in drawing 11 and drawing 12. This example shows an example of the case which is "becoming it a great success", and omits a graphic display and explanation about the case of a "blank" by which it is generated mostly. If it is becoming it a great success by a special pattern "777", it will be assumed that it becomes a probability variation.
[0046]The background figure handle (ornament pattern) which imitated the tree of the mountain, the river, and the coconut other than the three variable regions a2, a4, and a6, etc. as a background as shown in drawing 11 and drawing 12 is first displayed on the display screen of the special pattern display for indication 64 simultaneously. It is begun to fluctuate pattern groups in the fluctuation start (Step S44 of drawing 7, S64) of a pattern group almost all at once the variable region a2 shown in drawing 11 (A), a4, and a6. For example, after determining the reach pattern beta at Step S72 of drawing 8, a reach pattern is displayed in order to report having reached reach to a game person (Step S74 of drawing 8). In the example of drawing 11 (B), the special pattern "0" respectively same as a reach pattern is stopped and displayed on the left figures b2 of the variable region a2, and the right figures b6 of the variable region a6. Then, change of the pattern group still ongoing in the variable region a4 is suspended, and a stop schedule pattern is displayed (Step S92 of drawing 9). In the example of drawing 11 (C), the special pattern "000" is stopped and displayed on the variable region a2, a4, and a6 as a big hit pattern. GAKKARI [person] for a while although a game person is great success since it turned out at this time that it is not a probability variation.
[0047]Next, the hammer 68 is swung down, the motion is interlocked with, and a special pattern and/or a background figure handle are displayed (Step S98 of drawing 9, S100). When the hammer 68 ******(ed) actually strikes a display screen, in order to make a game person think that there was a shock, swaying a special pattern and a background figure handle in the example of drawing 12 (A), is continued for a while. If a crashing sound, a vibration sound, etc. are taken out from the loudspeaker 40 at this time, presence will increase more. Then, while beginning the re change of a special pattern in the variable region a2, a4, and a6, If the hammer 68 is returned to an original

position and the fluctuation period (for example, for 10 seconds) of a re change passes further, a special pattern will be stopped and displayed on the variable region a2, a4, and a6 (Step S102 of drawing 9, S104, S109). After it makes it scroll slowly and the re change of a special pattern changes to "111" from "000", shaking the special pattern concerned, for example, it stops scrolling. In the example of drawing 12 (B), while flinging up the hammer 68 and returning to an original position, the special pattern "111" is stopped and displayed on the variable region a2, a4, and a6 as a big hit pattern. Such a hammer 68 swings down, only the number of times n of a re change repeats the re change of /flinging up and a special pattern, and it is performed (Step S106 of drawing 9). And the stop schedule pattern after change is stopped and displayed eventually (Step S107 of drawing 9). In the example of drawing 12 (C), the special pattern "777" is eventually stopped and displayed on the variable region a2, a4, and a6 as a big hit pattern. Since it turns out to be a probability variation at this time, a game person expects and is pleased with future great successes.

[0048]As shown in drawing 3, drawing 12, etc., the hammer 68 was constituted so that it could move reciprocately to a sliding direction, but it may constitute so that it can move reciprocately also to a longitudinal direction further. In this case, since flinging up / way taking down come to be able to do the hammer 68 individually corresponding to the three variable regions a2, a4, and a6, operation for deciding a special pattern, respectively about the left figures b2, the middle figures b4, and the right figures b6 can be performed. When the hammer 68 is swung down, a picture, such as denting the special pattern (the left figures b2, the middle figures b4, right figures b6) currently displayed on the special pattern display for indication 64, flying, or making it in pieces, may be displayed. Since a touch of reality will increase more if it carries out like this, pleasure of the game person who is looking also increases. The re change of a special pattern is good also as a mode which performs a re change not only about the mode which synchronizes and performs left figures, middle figures, and all the right figures but about the pattern group (or variable region) continued and changed after reach. Left figures -> for example, right figures -> in the pachinko machine 10 which stops in order of middle figures, the hammer 68 strikes the variable region a4, and a re change is performed so that middle figures may be changed one after another. If it carries out like this, a game person will look at the special pattern display for indication 64 with the hope which expects great success by the re change of the remaining special patterns.

[0049]If according to the above-mentioned Embodiment 1 it corresponds to Claim 1 and the main control substrate 100 (motion-control part) moves the hammer 68 (movable body), Steps S92-S107 of [drawing 9 which displays a big hit pattern (picture) in the display screen (viewing area) in which the motion is interlocked with and the display control board 200 (image control part) contains the variable region a2 of the special pattern display for indication 64 (picture display part), a4, and a6, S109, drawing 11 (C), drawing 12 (A), Refer to drawing 12 (B) and drawing 12 (C).] That is, in the re change after a special pattern stops by a big hit pattern, the hammer 68 is made to enter into the display screen concerned, and a re change is stopped. Therefore, since a special pattern changes according to a motion of the hammer 68, the game person who looks at the special pattern display for indication 64 is not bored.

[0050]The display control board 200 changed a special pattern, an ornament pattern, etc., and the main control substrate 100 moved the hammer 68 so that it might correspond to Claim 2 and a motion of the hammer 68 and change of a special pattern might interlock [refer to Steps S98-S104 and drawing 12 which are shown in drawing 9]. That is, the hammer 68 will be moved to compensate for the re change of a special pattern and stop which the re change of a special pattern and a stop are performed according to the hammer 68 which moves to a sliding direction on the display screen of the special pattern display for indication 64, and a picture is changed, or are conversely performed by the display screen concerned. Therefore, since linkage of the hammer 68 and a special pattern changes to Oshi more, the game person who looks at the special pattern display for indication 64 is not bored more.

[0051]When it furthermore corresponds to Claim 4 and the hammer 68 entered in the display screen

of the special pattern display for indication 64, the display control board 200 changed the special pattern, and related the change to the display of the specified pattern {refer to Step S98 shown in drawing 9, S100, and drawing 12}. And a privilege is given to a game person according to the big hit pattern (special pattern; picture) stopped eventually {Step S30 shown in drawing 6}. If it carries out like this, since it not only sees and enjoys signs that the hammer 68 and a special pattern interlock and move, but the interlocking motion is related to privilege acquisition, the pleasure which looks at the situation concerned will increase.

[0052][Embodiment 2] Embodiment 2 is the example which applied this invention to the pachinko machine provided with the character as a movable body. The Embodiment 2 concerned is described referring to drawing 13 - drawing 16. Since the composition of the pachinko machine 10 is the same, in order to explain simply, Embodiment 2 explains a different point from Embodiment 1. The same mark is given to the same element as the elements (drawing 3 etc.) shown in Embodiment 1 in drawing 13 etc.

[0053]The complex device 92 shown in drawing 13 replaced with the complex device 14 shown in drawing 2, Reciprocating movement changes for them or stops the substance character 94 and common pattern which were constituted possible in the arrow D6 direction (Drawings sliding direction). The common pattern display 72 and picture to display. It has the special pattern display for indication 64 to display, the reserved ball lamp 62 which usually displays the number of a pachinko ball which passed through the gates 24 and 46 during change of a pattern, and the reserved ball lamp 66 grade which displays the number of the pachinko ball which won a prize of the 1st type start opening 20 or the lower start opening 56 during change of a special pattern.

[0054]It is what ornamented by piercing a plate, and constitutes, and the substance character 94 which imitated the alligator goes in and out from the entrance 92a with which the complex device 92 was equipped. This substance character 94 receives the power generated by the motor 97 through a power transmission device, and moves. Hereafter, the example of a power transmission device is explained. The substance character 94 is fixed to the rack 95, and the pinion 96 which gears with the rack 95 is fixed to the axis of rotation 97a of the motor 97. The motor 97 replaces the solenoid 86 shown in drawing 4 etc., and controls rotation by the main control substrate 100. Therefore, a motion of the substance character 94 is controllable by controlling rotation of the motor 97 from the main control substrate 100. A motion of the substance character 94 may be controlled by composition of the torque transmission mechanism etc. which were mentioned above.

[0055]Although the reach processing shown in drawing 14 performs reach processing shown in drawing 8, and almost same processing, it is replaced with interlocking change processing (Step S78), and performs the following processings. That is, at the time of the reach pattern beta, the virtual character 98 (movable body of imagination) which imitated the substance character 94 (movable body of substance) is displayed on the special pattern display for indication 64 while continuing change of (YES of Step S76), and the remaining pattern groups. [Step S82] .And after interlocking change of a pattern group, and a motion of a movable body [Step S84] Change of the pattern group concerned and a motion of a movable body are stopped. [Step S86] .The example of these steps S82-S84 is explained with reference to drawing 15 and drawing 16.

[0056]When reach is reached and Step S82 is performed, the virtual character 98 is made to appear in the special pattern display for indication 64, as shown in drawing 15 (A). In the example of drawing 15 (A), the virtual character 98 has appeared from screen right-hand side. This virtual character 98 is the picture which imitated the substance character 94, and as shown in drawing 15 (B), after an appearance moves it towards the position in which the substance character 94 is (in for example, arrow D8 direction). In the example of drawing 15 (B), the tail of the virtual character 98 under which it tries to go underwater is in sight. And when Step S84 is performed, the substance character 94 is made to appear and it is made to enter in the viewing area of the special pattern display for indication 64 shortly, as shown in drawing 16 (A). In the example of drawing 16 (A), in order to stop the middle figures b4, the substance character 94 has entered in the viewing area of

the special pattern display for indication 64. Then, change of a pattern group currently performed in the arrow D10 direction is made slow, and as shown in drawing 16 (B), the movement speed of the middle figures b4 and the movement speed of the substance character 94 are coincided mostly. If it carries out like this, it seems to make it move, while the substance character 94 will bite the middle figures b4, if it sees from a game person. In the example of drawing 16 (B), it seems to move, while the substance character 94 bites the middle figures b4 "5." While suspending change of a pattern group by performing Step S86 further after that, a motion of the substance character 94 is stopped. The timing of a stop may be in agreement and may differ. Since the virtual character 98 was moved towards the position in which the substance character 94 is and the substance character 94 was moved after that, the picture and movable body of an alligator which were imitated are interlocking. In this way, since the picture of an alligator and the linkage of a movable body which were imitated change to Oshi more, the game person who looks at the special pattern display for indication 64 is not bored more.

[0057]If according to the above-mentioned Embodiment 2 it corresponds to Claim 3 and the substance character 94 (movable body) enters in the viewing area of the special pattern display for indication 64, The display control board 200 (display control part) changes the middle figures b4 (special pattern; picture), or the main control substrate 100 (motion-control part) moves the substance character 94 {refer to Step S82 shown in drawing 14, S84, drawing 15, and drawing 16}. While the substance character 94 bites the middle figures b4, it moves, and change of the middle figures b4 concerned and a motion of the substance character 94 are visible, namely, seem to have done the dynamic operation. Signs that a dynamic operation is actually exerted on the middle figures b4 (picture without substance) from the impossible substance character 94 (movable body with substance) by this control can be directed. Therefore, since linkage of the substance character 94 and the middle figures b4 changes to Oshi more, the game person who looks at the special pattern display for indication 64 (picture display part) is not bored more.

[0058]It can also make it the same to direct signs that a dynamic operation is exerted on the substance character 94 (movable body with substance) from the middle figures b4 (picture without substance). in drawing 16 (B) -- Drawings above (the arrow D10 and a counter direction) -- the middle figures b4 and the substance character 94 -- speed -- about -- when it is made to do one and is made to move, it seems to pull up the substance character 94 which bit the middle figures b4. Even if these things replace the middle figures b4 with the left figures b2, the right figures b6, and the virtual character 98, they are the same. In addition, in addition, it is good to make it change so that the form of the middle figures b4 concerned may be crushed, when a part of substance character 94 which moves to a sliding direction is constituted so that an operation is possible (for example, opening and closing of a mouth are possible), or the substance character 94 bites the middle figures b4. Since a touch of reality will increase more if it carries out like this, pleasure of the game person who is looking also increases.

[0059]If it corresponds to Claim 1 and the display control board 200 (image control part) displays a reach pattern (necessary picture) in the viewing area of the special pattern display for indication 64, The main control substrate 100 (motion-control part) controls the motion which makes the substance character 94 (movable body) enter in the viewing area concerned {refer to Step S82 shown in drawing 14, S84, and drawing 16}. In this example, the display of a reach pattern is equivalent to necessary timing. Therefore, since linkage of the substance character 94 and a special pattern changes like Embodiment 1, the game person who looks at the special pattern display for indication 64 (picture display part) is not bored. So that it may furthermore correspond to Claim 2 and the motion of the substance character 94 and the change of a special pattern in the viewing area of the special pattern display for indication 64 may interlock, The display control board 200 changed the special pattern, and the main control substrate 100 moved the substance character 94 {refer to Step S82 shown in drawing 14, S84, and drawing 16}. Therefore, since linkage of the substance character 94 and a special pattern changes to Oshi more like Embodiment 1, the game

person who looks at the special pattern display for indication 64 is not bored more. And when it corresponds to Claim 4 and the substance character 94 entered in the viewing area of the special pattern display for indication 64, the display control board 200 changed the special pattern, and related the change to the display of the specified pattern {refer to Step S82 shown in drawing 14, S84, and drawing 16}. Therefore, since it not only sees and enjoys signs that the substance character 94 and a special pattern interlock and move, like Embodiment 1, but the interlocking motion is related to privilege acquisition, the pleasure which looks at the situation concerned increases. In this case, if the virtual character 98 is made to appear and the substance character 94 is moved when the probability which is becoming it a great success is high, the game person who looked at the virtual character 98 grade can play a game with the hope which is becoming it a great success.

[0060][Other embodiments] In the pachinko machine 10 (game machine) mentioned above, it is not limited for the structure of other portions, form, a size, construction material, arrangement, and an operating condition to the above-mentioned embodiment. For example, each of following forms adapting the above-mentioned embodiment can also be carried out.

(1) According to each above-mentioned embodiment, this invention was applied to the pachinko machine 10. It can replace with this form and this invention can be applied also like what is other game machines (for example, a slot machine, a pachislot machine, a ball arranging machine, a mahjong ball game machine, a video game machine, etc.) other than a pachinko machine, and was provided with the picture display part and the movable body at least. being concerned -- others -- since a picture changes according to a motion of a movable body even if it is a game machine, the game person who looks at a picture display part is not bored.

[0061](2) According to the above-mentioned Embodiment 1, the hammer 68 which can move reciprocately to a sliding direction as a movable body was applied. It may replace with this form and the putter 99 which imitated the thing that rotational movement is possible and for golf may be applied. Rotational movement of the putter 99 concerned is realizable by composition shown, for example in drawing 3. What is necessary is to attach the putter 99 to the rotation member 90 instead of the hammer 68, and just to more specifically arrange the solenoid 86, a torque transmission mechanism, etc. almost in parallel with the special pattern display for indication 64. The main control substrate 100 can control angle of rotation, revolving speed, etc. of the putter 99 by performing reach processing shown in drawing 14. Here, it explains, referring to drawing 17 and drawing 18 for the example which interlocks rotational movement of the putter 99, and a motion of a picture.

[0062]In this example, if it becomes reach in a reach pattern "77", while eliminating a special pattern temporarily to the viewing area of the special pattern display for indication 64, the green 302 of a golf course will be imitated and displayed (refer to drawing 17 (A), drawing 17 (B), drawing 17 (C), and drawing 18 (A)). There is the cup 304 in this green 302. As shown in drawing 17 (A), after the golf ball 300 by which the shot was carried out stops on the green 302, If it begins to make a prescribed direction (for example, arrow D12 direction) rotate the putter 99 from the reference position shown in drawing 17 (A), the putter 99 concerned will enter in a viewing area like drawing 17 (B) and drawing 17 (C). If it furthermore continues rotating the putter 99, as the golf ball 300 which had stopped on the green 302 as shown in drawing 17 (C) was hit, it is begun to move the golf ball 300 concerned. If it goes into the cup 304 as the golf ball 300 shows drawing 18 (A), as shown in drawing 18 (B), while returning the putter 99 to a reference position, a necessary picture will be displayed on a viewing area. That is, with the character "great success", the special pattern "777" is displayed on the variable region a2, a4, and a6 as the left figures b2, the middle figures b4, and the right figures b6, respectively.

[0063]If it carries out like this, a big hit notice can be directed by linkage with a picture and a movable body. Since a dynamic operation which exerts the movement power accompanying rotational movement of the putter 99 on the golf ball 300 can be expressed, it seems to a game

person that the putter 99 of substance has hit the golf ball 300 of imagination without substance. Thus, since it was made for the golf ball 300 to move according to a motion of the putter 99, the game person who looks at the special pattern display for indication 64 is not bored. If the presentation display of such linkage is performed, it is visually intelligible, and the action state is interesting, seeing the motion. Such a dynamic operation can apply similarly not only the example to strike (it strikes) but other natural phenomena (for example, it drops [pulling / to push /, taking up and down,]) to a **** case. For example, a balloon is displayed as a picture and the components (a needle, a spear, etc.) in which the point sharpened are provided so that reciprocating movement is possible. And if a balloon is poked by the component in which the point sharpened, a picture will be changed so that a balloon may explode. The above-mentioned effect can be acquired also in this case.

[0064](3) patterns (a chance pattern, the Fig. 4 handle, an ornament pattern, etc.) other than the special pattern displayed with the special pattern display for indication 64 although the special pattern (the left figures b2, the middle figures b4, right figures b6) was applied as a picture in each above-mentioned embodiment -- it usually displays by the pattern display 72 -- a pattern etc. may usually be applied. Since a movable body is interlocked with and it changes even if it is these pictures, the game person who looks at the special pattern display for indication 64 is not bored. Although the special pattern display for indication 64 was applied as a picture display part, the pattern display 72 and other displays for indication may usually be applied. Even if it is these displays for indication, change of a picture and the motion of a movable body which are displayed on the display for indication concerned can be interlocked. Therefore, the game person who usually looks at the pattern display 72 and other displays for indication is not bored. although the special pattern display for indication 64 all boiled mostly the viewing area into which a movable body enters and it was applied (see drawing 12 (B), drawing 16 (A), drawing 17 (C), etc.), it is good also as some viewing areas of the special pattern display for indication 64, and good also as a viewing area of other displays for indication. It is possible to apply not only to one viewing area but to two or more viewing areas. It controls by the example which has a viewing area of 2 as follows. That is, change of the picture displayed on the viewing area concerned is interlocked with, and a movable body is made to enter in one viewing area. The picture displayed on the viewing area of another side at this time may be independently displayed as a motion of a movable body, or may be interlocked with a motion of a movable body and may be displayed. Since linkage of a movable body and a picture will change to Oshi more if it carries out like this, the game person who looks at the special pattern display for indication 64 is not bored more.

[0065](4) According to each above-mentioned embodiment, it realized as one of the reach patterns which performs linkage with a picture and a movable body after reach (refer to drawing 8 and drawing 14). it may replace with this form (or -- adding), and linkage with a picture and a movable body may be realized about all the modes which can be displayed with the special pattern display for indication 64 like change of the pattern group performed before reach, and the animation displays (ornament pattern etc.) in a probability variation and big hit games. For example, in change of a pattern group performed before reach, when the probability which becomes reach increases, a picture and a movable body will be interlocked (if necessary timing is reached). Since linkage of a movable body and a picture will change to Oshi more if it carries out like this, the game person who looks at the special pattern display for indication 64 is not bored more. The game person can play a game with the hope which becomes reach, a probability variation, etc.

[0066](5) According to each above-mentioned embodiment, when the movable body (the hammer 68, the substance character 94, putter 99 grade) of 1 was moved, the motion was interlocked with and the picture was displayed on the picture display part (special pattern display for indication 64) of 1. It replaces with this form, a motion of the movable body of 1 may be interlocked with, a picture may be displayed on two or more picture display parts, a motion of two or more movable bodies may be interlocked with, and two or more pictures may be displayed on the picture display part of 1. A

movable body may apply other arbitrary movable bodies in which the motion which enters not only into the hammer 68, the substance character 94, and the putter 99 but into a viewing area is possible. For example, as a mode which is interlocked with a motion of two or more movable bodies, and displays two or more pictures on the picture display part of 1, two or more substance characters 94 shown in drawing 13 are formed to the complex device 14 shown in drawing 2. And before being becoming it a great success, two or more substance characters 94 are moved, and the hammer 68 is moved by the re change after great success. Since the interlocking mode of a picture and a movable body will be diversified if it carries out like this, the pleasure which looks at signs that it interlocks and moves can be given to a game person more. It is good also as composition interlocked and moved so that a movable body may receive an operation in a target on the other hand by the picture displayed on a picture display part. For example, two or more entrances 92a with which the complex device 14 was equipped, and same entrances are provided lining up side-by-side, and the motion which a mole (substance character) comes out from two or more entrances concerned, respectively, or withdraws constitutes possible. and the hammer imitated and displayed on the picture display part -- either -- the animation which strikes arbitrary moles is displayed. The mole is retracted when it can be recognized as having hit the mole in which it saw from the game person and the hammer of the picture display part came out from the entrance. In this way, since the mode to which a movable body moves to compensate for change of a picture is realized, the game person who looks at a picture display part is not bored.

[0067](6) According to each above-mentioned embodiment, the special pattern display for indication 64 which makes light emit (coloring) and displays a picture was applied as a picture display part. It can replace with this form and mechanical displays for indication, such as a drum display which displays the picture expressed with the display surface, can also be applied as a picture display part. For example, a drum display has 1 or two or more solids of revolution, arranges two or more pictures on the surface (namely, display surface) of the solid of revolution appropriately, and expresses them with it. In this way, the part where a game person can recognize the picture expressed with the solid of revolution is equivalent to a viewing area. And change of a pattern group, etc. are realized by carrying out the roll control of the solid of revolution for positive rotation, counterrotation, reciprocal rotation, revolving speed, etc. with drivers, such as a motor. If according to this composition you make it a motion of a movable body interlocked with and the roll control of a solid of revolution is performed, the picture in a viewing area can be changed. Therefore, the game person who looks at a picture display part is not bored.

[0068]

[The mode of other invention] As mentioned above, although the embodiment of the invention was described, in this embodiment, it has not only the mode of invention indicated to Claims but a mode of other invention. While enumerating the modes of this invention below, related explanation is given if needed.

[0069][Mode 1] A picture display part provided with the viewing area which can display a picture, and the image control part which controls the display of said picture, The game machine which has a movable body in which the motion which enters in said viewing area is possible, and a motion-control part which will control the motion which makes said movable body enter in said viewing area if said image control part displays a necessary picture on said viewing area.

[Related explanation of the mode 1] According to this mode, if an image control part displays a necessary picture on a viewing area, a motion-control part will control the motion which makes a movable body enter in the viewing area concerned. When a movable body enters in a viewing area, it seems to a game person that a picture and a movable body interlock with reality and move within the viewing area concerned. Since a motion of such a movable body will be performed if a necessary picture is displayed on a viewing area, change arises according to the contents of the picture. In this way, since a picture changes according to a motion of a movable body, the game person who looks at a picture display part is not bored.

[0070][Mode 2] The game machine to which a motion-control part will move a movable body if necessary conditions are fulfilled in the game machine indicated in any 1 clause or the above-mentioned mode 1 of 5 from Claim 1.
[Related explanation of the mode 2] According to this mode, a motion-control part moves a movable body only after fulfilling necessary conditions, and linkage of the movable body concerned and picture is realized. Since the game person can know having fulfilled necessary conditions when linkage of a movable body and a picture is seen, he can report the privilege etc. which are given to the game performed when necessary conditions are fulfilled, and a game person. In the meaning, linkage of a movable body and a picture serves as an alarming means. Therefore, the information to a game person can be transmitted more certainly. "Necessary conditions" is conditions appropriately defined according to the kind of game machine, time, a game position, etc., it may fix and the conditions concerned may change them. For example, there are conditions, like that a game ball wins a prize or passes to a predetermined region or a special pattern when it becomes it a great success is a specified pattern.

[Translation done.]

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3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]It is a front view showing the appearance of a pachinko machine.
[Drawing 2]It is a front view showing the appearance of a complex device.
[Drawing 3]It is a figure showing the example of composition for moving a hammer.
[Drawing 4]It is a block diagram showing the outline composition of a main control substrate and a display control board.
[Drawing 5]It is a flow chart which shows the 1st type start opening processing.
[Drawing 6]It is a flow chart which shows pattern fluctuation processing.
[Drawing 7]It is a flow chart which shows fluctuation displaying processing.
[Drawing 8]It is a flow chart which shows reach processing.
[Drawing 9]It is a flow chart which shows interlocking change processing.
[Drawing 10]It is a flow chart which shows picture display processing.
[Drawing 11]It is a figure showing an example of the picture displayed on the special pattern display for indication.
[Drawing 12]It is a figure showing an example of the picture displayed on the special pattern display for indication.
[Drawing 13]It is a front view showing the appearance of a complex device.
[Drawing 14]It is a flow chart which shows reach processing.
[Drawing 15]It is a figure showing the interlocking example of a picture and a movable body.
[Drawing 16]It is a figure showing the interlocking example of a picture and a movable body.
[Drawing 17]It is a figure showing the interlocking example of a picture and a movable body.
[Drawing 18]It is a figure showing the interlocking example of a picture and a movable body.
[Explanations of letters or numerals]
10 Pachinko machine (game machine)
12 Game board surface
14 Complex device
20 The 1st type start opening
24 and 46 Gate
22 and 48 Gate sensor
50 and 54 Start opening sensor
56 Lower start opening
64 Special pattern display for indication (picture display part)
68 Hammer (movable body)
72 It is usually a pattern display.
86 Solenoid (driver)
92 Complex device
94 Character (movable body)

97 Motor (driver)
99 Putter (movable body)
100 Main control substrate (motion-control part)
200 Display control board (image control part)

[Translation done.]

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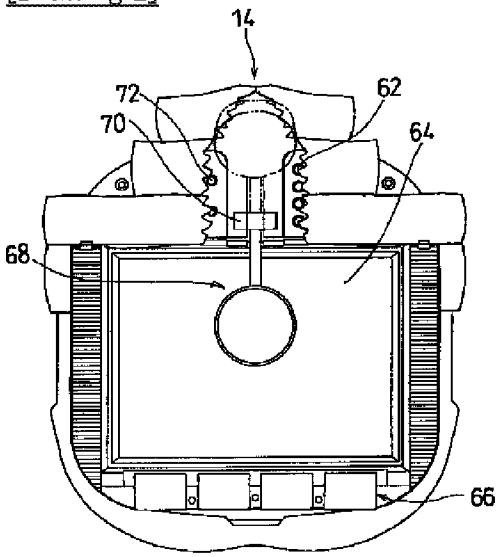
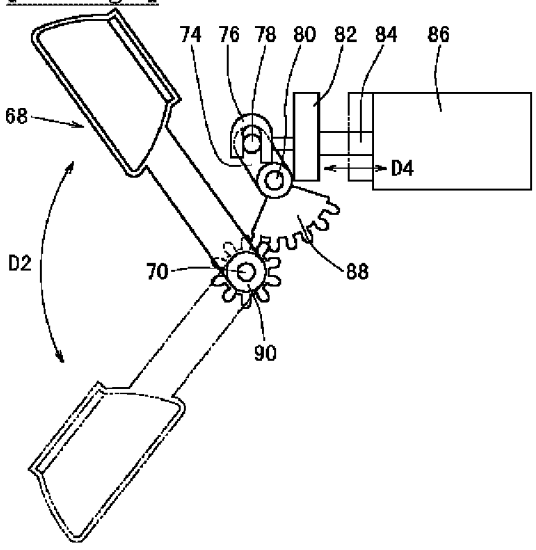
DRAWINGS

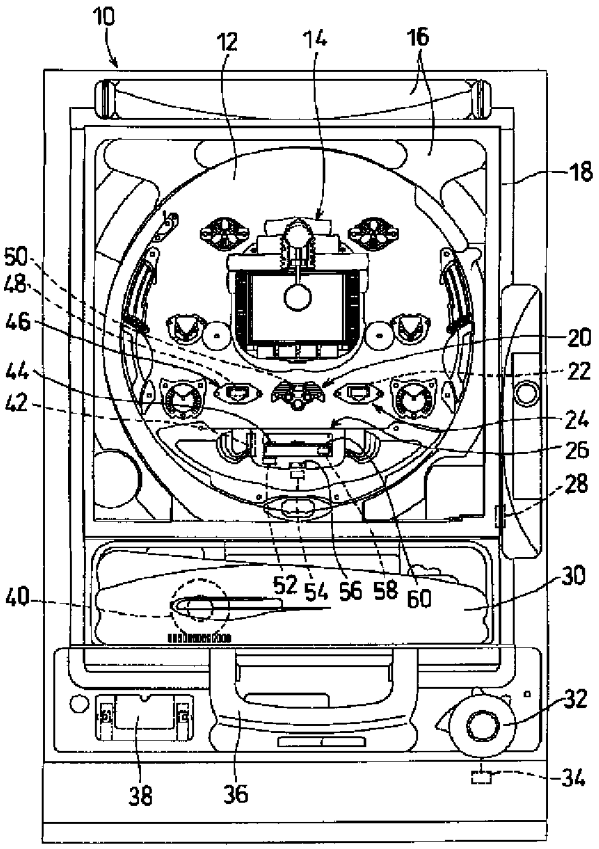
[Drawing 2]



[Drawing 3]



[Drawing 1]



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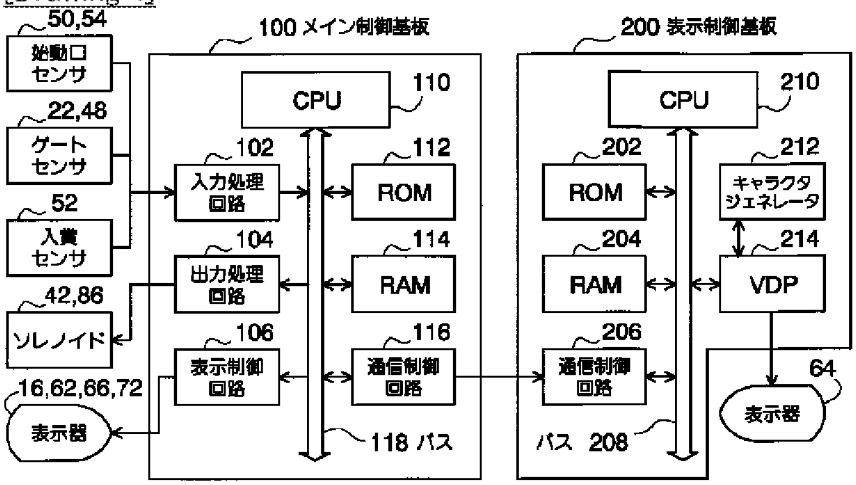

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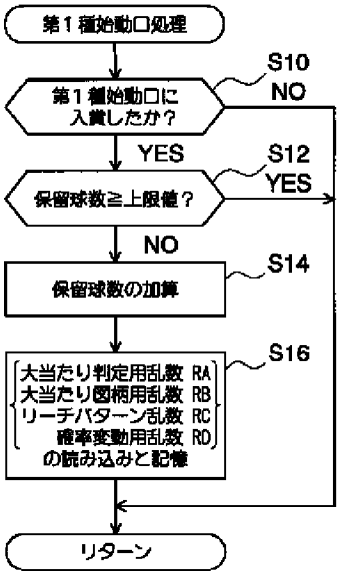
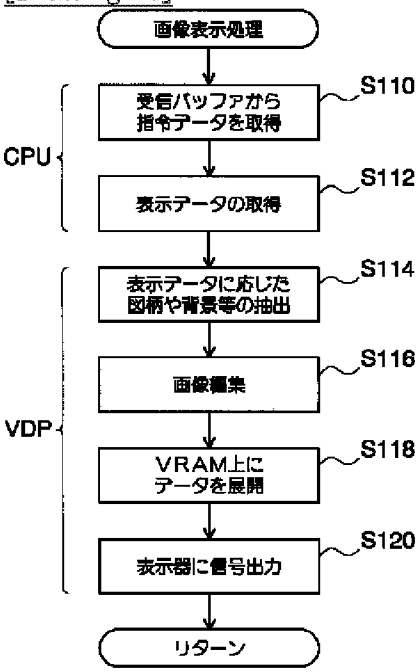


[Drawing 10]



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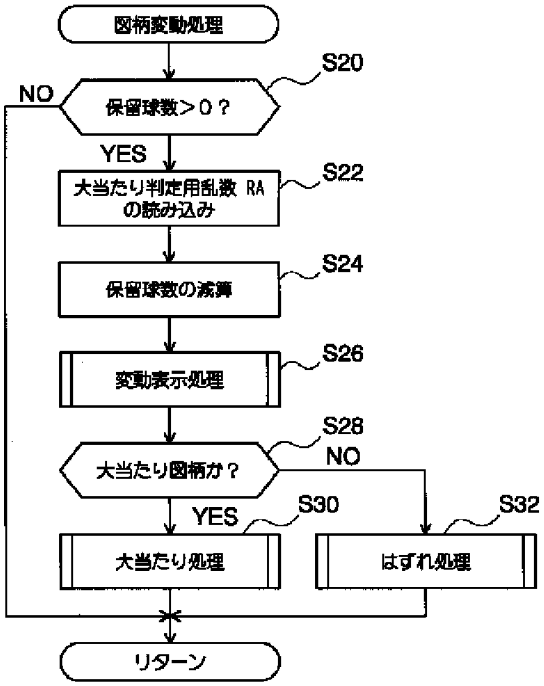
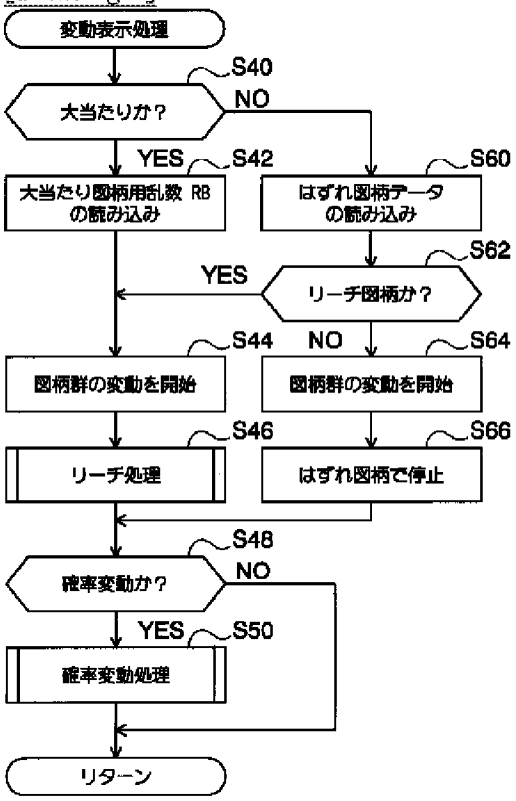
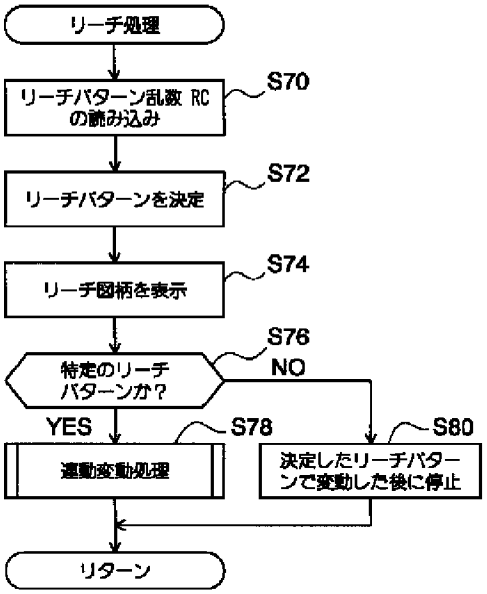


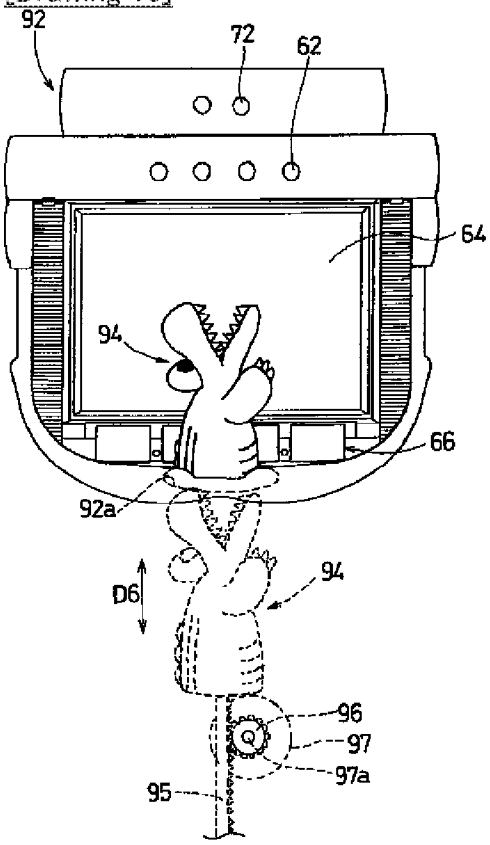
[Drawing 7]



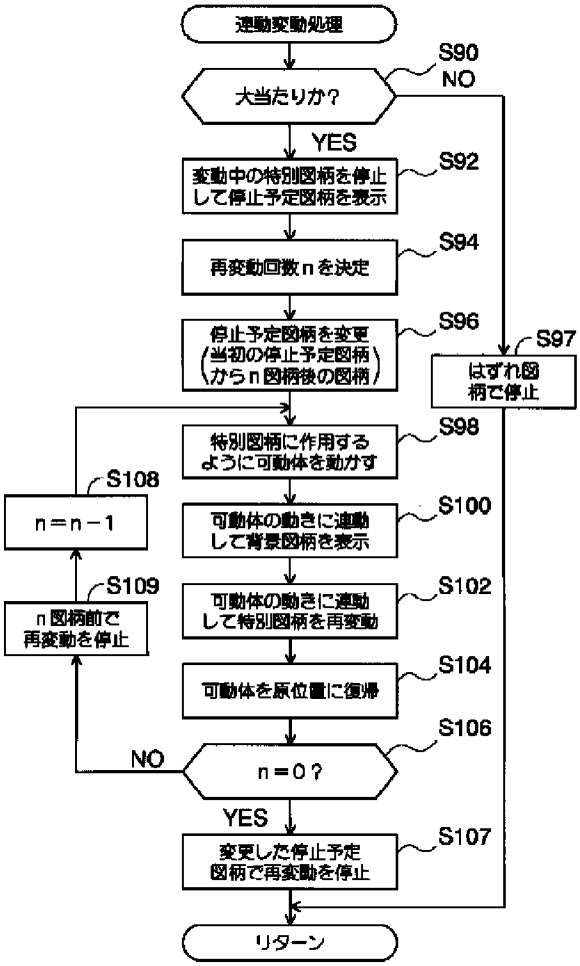
[Drawing 8]



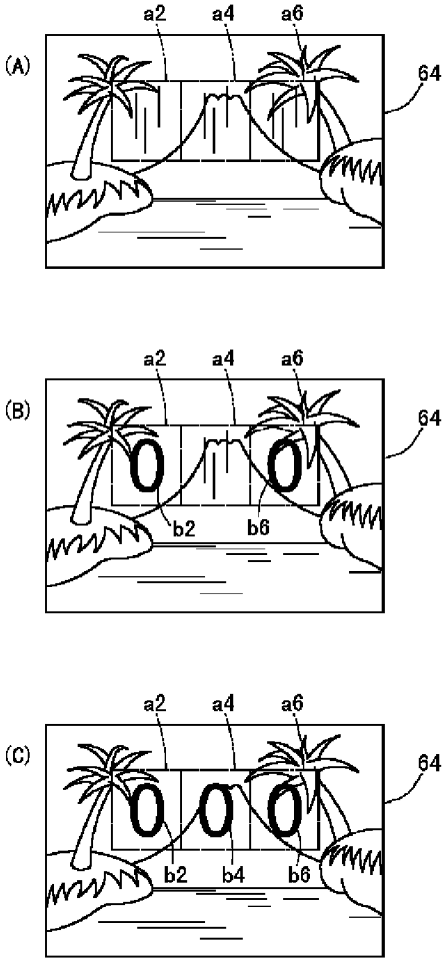
[Drawing 13]



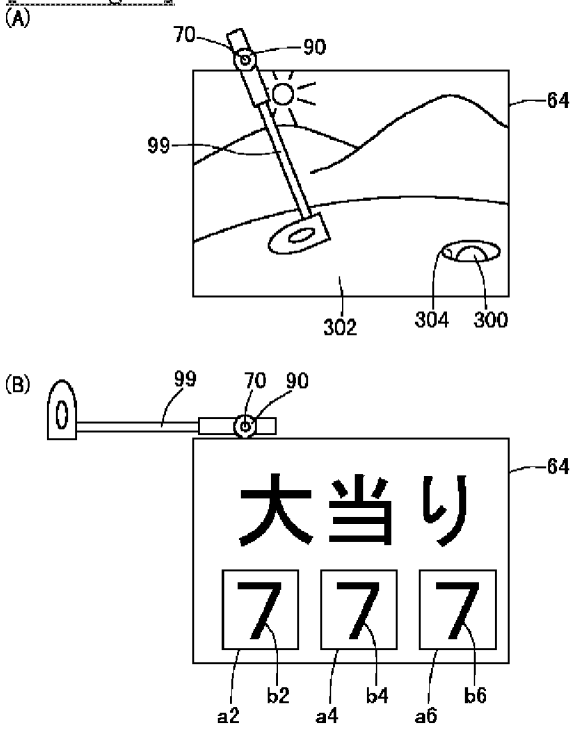
[Drawing 9]


連動変動処理
S90
NO
大当たりか？
YES
S92
変動中の特別図柄を停止して停止予定図柄を表示
S94
再変動回数ｎを決定
S96
停止予定図柄を変更（当初の停止予定図柄からｎ図柄後の図柄）
S97
はずれ図柄で停止
S98
特別図柄に作用するように可動体を動かす
S100
可動体の動きに連動して背景図柄を表示
S102
可動体の動きに連動して特別図柄を再変動
S104
可動体を原位置に復帰
S106
NO
ｎ＝０？
YES
S107
変更した停止予定図柄で再変動を停止
リターン
S108
ｎ＝ｎ－１
S109
ｎ図柄前で再変動を停止

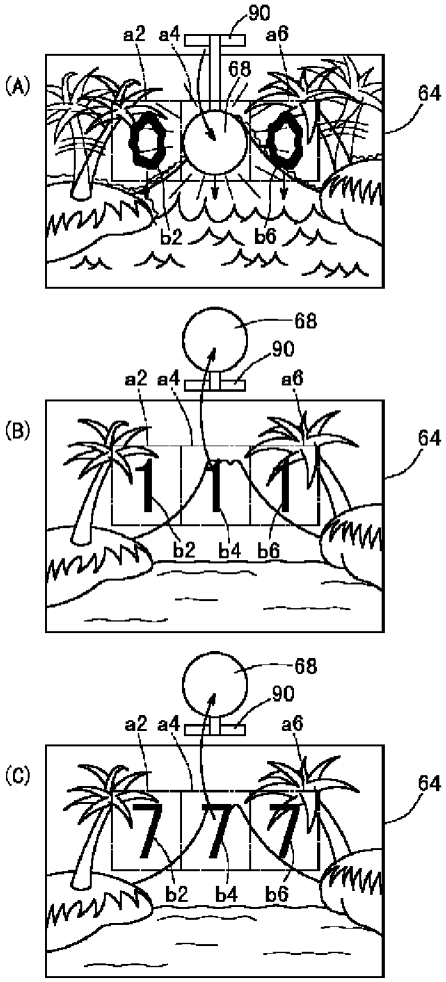
[Drawing 11]



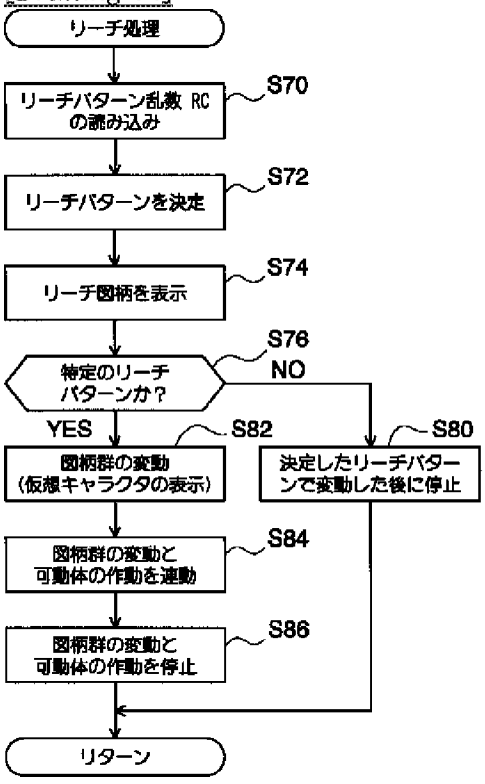
[Drawing 18]



[Drawing 12]

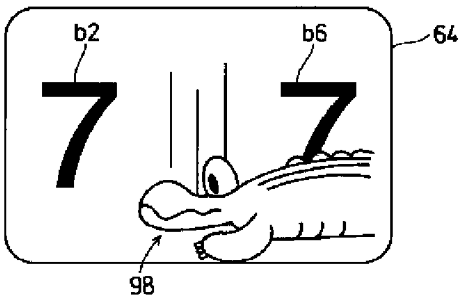

(A)
90
a2 a4
a6
68
64
b2
b6
(B)
68
90
a2 a4
a6
64
1 1 1
b2 b4 b6
(C)
68
90
a2 a4
a6
64
7 7 7
b2 b4 b6

[Drawing 14]

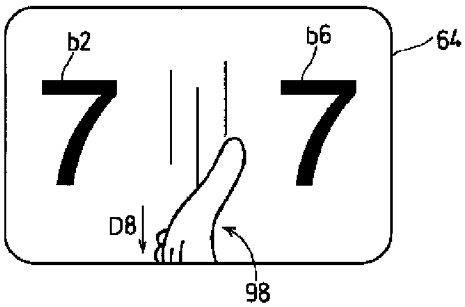

リーチ処理
リーチパターン乱数 RC の読み込み
S70
リーチパターンを決定
S72
リーチ図柄を表示
S74
特定のリーチパターンか？
S76
NO
YES
S82
S80
図柄群の変動（仮想キャラクタの表示）
決定したリーチパターンで変動した後に停止
図柄群の変動と可動体の作動を連動
S84
図柄群の変動と可動体の作動を停止
S86
リターン

[Drawing 15]

(A)

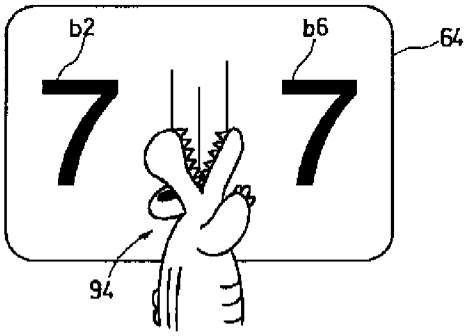


(B)

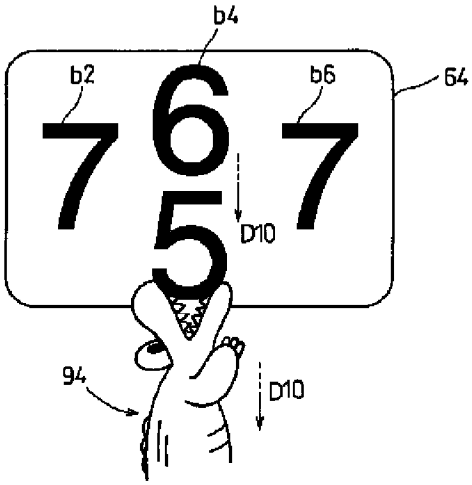


[Drawing 16]

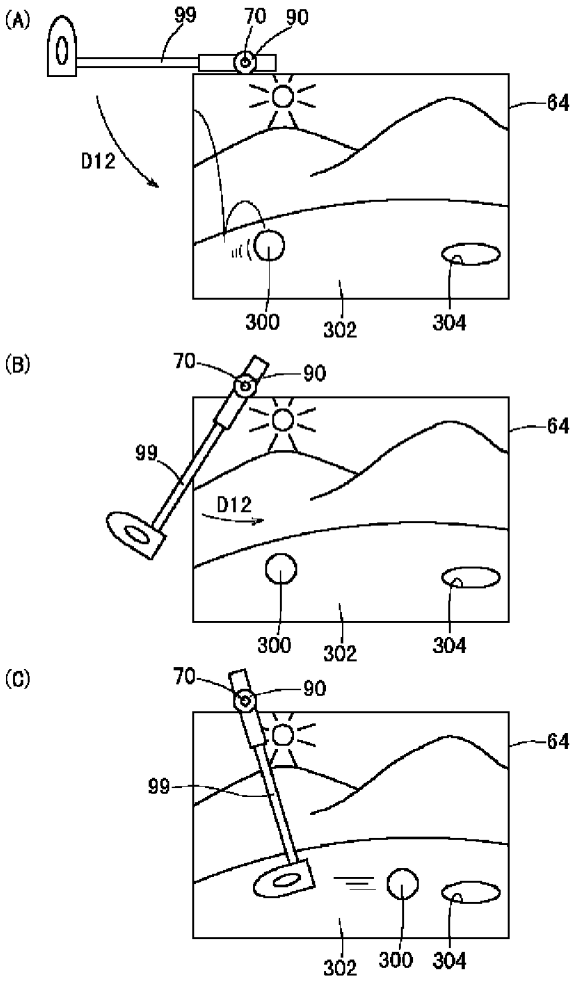
(A)



(B)



[Drawing 17]



[Translation done.]

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（P2001－25546A）
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(51)Int.Cl.⁷	識別記号	ＦＩ		テーマコード（参考）
Ａ６３Ｆ　7/02	３２０	Ａ６３Ｆ　7/02	３２０	２Ｃ０８８

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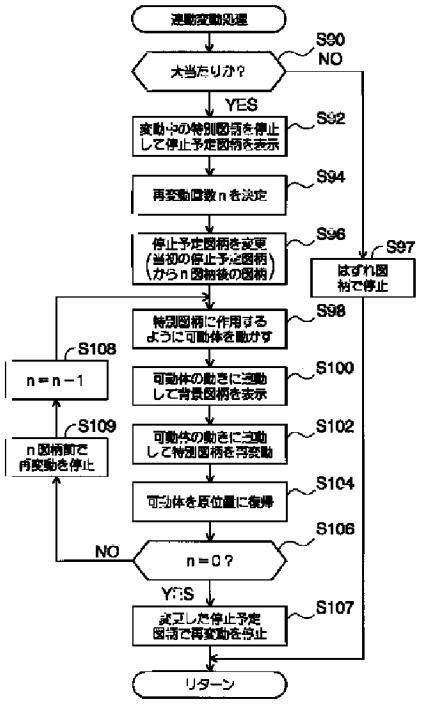
最終頁に続く

(54)【発明の名称】　遊技機

(57)【要約】
【課題】　可動体の動きに合わせて画像を変化させて、画像表示部を見る遊技者を飽きさせないようにする。
【解決手段】　パチンコ機等の遊技機に関し、初めに停止予定図柄を表示した後（ステップＳ９２）、ハンマーを振り下ろして当該動きに連動して特別図柄および／または背景図柄を表示する（ステップＳ９８，Ｓ１００）。その後、再変動を始めるとともにハンマーを原位置に復帰させ、さらに再変動の変動期間を経過すると変動領域に特別図柄を停止して表示する（ステップＳ１０２，Ｓ１０４，Ｓ１０９）。こうしたハンマーの振り下ろし／振り上げと特別図柄の再変動を再変動回数ｎだけ繰り返し行い（ステップＳ１０６）、最終的にはステップＳ９６で変更した停止予定図柄を停止して表示する（ステップＳ１０７）。よって可動体の動きに合わせて画像（特別図柄や背景図柄等）が変化するので、画像表示部を見る遊技者を飽きさせない。



【特許請求の範囲】
【請求項１】　画像を表示可能な表示領域を有する画像表示部と、
前記画像の表示を制御する画像制御部と、
少なくとも前記表示領域内に入り込む動きが可能な可動体と、
前記可動体の動きを制御する動作制御部とを備え、
前記動作制御部が前記可動体を動かすと、その動きに連動して前記画像制御部が前記表示領域に画像を表示する遊技機。
【請求項２】　画像を表示可能な表示領域を有する画像表示部と、
前記画像の表示を制御する画像制御部と、
少なくとも前記表示領域内に入り込む動きが可能な可動体と、
前記可動体の動きを制御する動作制御部とを備え、
前記可動体の動きと画像の変化とが連動するように、前記画像制御部が画像を変化させ、前記動作制御部が前記可動体を動かす遊技機。
【請求項３】　請求項１または２に記載した遊技機において、
表示領域内に可動体が入り込むと、その可動体および画像の一方が他方に対して力学的作用を及ぼしたと見えるように画像制御部が前記画像を変化させおよび／または動作制御部が前記可動体を動かす遊技機。
【請求項４】　請求項１から３のいずれか一項に記載した遊技機において、
図柄の表示を制御する画像制御部と、
結果として画像表示部に特定図柄が表示されると遊技者に特典を与える遊技制御部とを備え、
前記可動体の動きと図柄の変化とが連動するように、前記画像制御部が図柄を変化させ、前記動作制御部が前記可動体を動かす遊技機。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】本発明は、少なくとも画像表示部と可動体とを備えた遊技機に関する。
【０００２】
【従来の技術】遊技機の一つであるパチンコ機では、パチンコ球が所定領域（例えばゲートや始動口等）に入賞したり通過すると、画像表示器において複数の変動領域でそれぞれ図柄群を変動させ始める。このような図柄群の変動状態を「図柄変動」と呼ぶ。そして、図柄変動を始めてからしばらくした後に図柄群の変動を停止し、結果として画像表示器に特定図柄が表示されると遊技者に特典を与える。
【０００３】ところで、図柄群の変動と停止による演出のみでは表示が単調になってしまい、遊技者は画像表示器を見るのを飽きてしまう。この問題を解決するための技術が例えば特開平８－２２９２０４号公報や特開平８－１４１１６１号公報に開示されている。当該公報に開示された技術では、所定位置に設けた可動体が画像に合わせて回転するように構成している。この構成によれば、単に画像の変化だけでなく可動体の動きも加わるので、遊技者は画像と可動体とが連動して動く様子を見て楽しみながら遊技することができる。
【０００４】
【発明が解決しようとする課題】しかし、当該公報に開示された技術では所定位置に設けられた可動体が画像に合わせて回転するだけであり、変化に乏しく単なる装飾の一態様に過ぎない。すなわち可動体が画像に対して積極的に働きかけることもなく、逆に画像が可動体に対して積極的に働きかけることもない。少し見慣れると遊技者は画像と可動体の連動に飽きてしまう。本発明はこのような点に鑑みてなされたものであり、実体のある可動体と実体のない画像とが表示領域内で連動する演出により、可動体と画像の連動を変化させて遊技者を飽きさせないようにすることを目的とする。
【０００５】
【課題を解決するための手段１】課題を解決するための手段１は、請求項１に記載した通りである。ここで、請求項１に記載した用語については以下のように解釈する。当該解釈は他の請求項および発明の詳細な説明についても同様である。
（１）「画像」には、特別図柄，普通図柄，装飾図柄等のような図柄に限らず、映像，文字情報等のように画像表示部に表示可能なすべてのものを含む。
（２）「表示領域」には、画像表示部で表示可能な領域の全部に限らず、当該領域の一部をも含む。
（３）「画像表示部」は一の表示器（表示装置）としてもよく、複数の表示器で構成してもよい。複数の表示器で構成した場合の「表示領域」は、各表示器の表示領域の全部または一部からなる。
（４）「表示領域内に入り込む動き」としては、遊技機の正面から見て表示領域上に重なるように可動体が入り込むような動作に限らず、画像表示部の外側から動いてきた可動体が表示領域内で可動体を模した画像に変化して入り込むような動作をも含む。「少なくとも表示領域内に入り込む動き」とは表示領域内に入り込む動きだけでなく、表示領域内での動きや、表示領域内から出る動きなどをも任意に含める趣旨である。
【０００６】当該手段１によれば、動作制御部が可動体を動かすと、その動きに連動して画像制御部が表示領域に画像を表示する。このとき可動体は表示領域内外で動いたり、表示領域内に入り込んだり、あるいは表示領域内から出たりする。遊技者から見ると、可動体の動きに連動して画像が変化してゆく。よって、可動体の動きに合わせて画像が変化するので、画像表示部を見る遊技者を飽きさせない。
【０００７】

【課題を解決するための手段２】課題を解決するための手段２は、請求項２に記載した通りである。ここで、請求項２に記載した用語の「画像を変化させる」には、単にある画像を他の画像に変更する態様に限らず、図柄群の変動を停止する態様や、停止している画像から図柄群の変動を始める態様をも含む。当該解釈は他の請求項および発明の詳細な説明についても同様である。

【０００８】当該手段２によれば、表示領域内における可動体の動きと画像の変化とが連動するように、画像制御部が画像を変化させ、動作制御部が可動体を動かす。すなわち、表示領域内で動いた可動体に合わせて画像が変化し、あるいは逆に表示領域内で変化した画像に合わせて可動体が動くことになる。したがって、可動体と画像の連動がより多様に変化するので、画像表示部を見る遊技者をより飽きさせない。

【０００９】

【課題を解決するための手段３】課題を解決するための手段３は、請求項３に記載した通りである。ここで、請求項３に記載した用語の「力学的作用」とは、打つ（叩く），押す，引っ張る，上げ下げする，落とす等のように自然現象を模するような作用である。当該解釈は他の請求項および発明の詳細な説明についても同様である。

【００１０】当該手段３によれば、表示領域内に可動体が入り込むと、画像制御部が画像を変化させたり、動作制御部が可動体を動かす。当該画像の変化や可動体の動きは、その可動体および画像の一方が他方に対して力学的作用を及ぼしたと見えるようにする。こうした制御により実際にはあり得ない実体のある可動体から実体のない画像に力学的作用を及ぼしたり、あるいは逆に実体のない画像から実体のある可動体に力学的作用を及ぼす様子を演出することができる。したがって、可動体と画像の連動がより多様に変化するので、画像表示部を見る遊技者をより飽きさせない。

【００１１】

【課題を解決するための手段４】課題を解決するための手段４は、請求項４に記載した通りである。ここで、請求項４に記載した用語の「図柄を変化させる」には「画像を変化させる」と同様に、単にある図柄を他の図柄に変更する態様に限らず、図柄群の変動を停止する態様や、停止している図柄から図柄群の変動を始める態様をも含む。当該解釈は他の請求項および発明の詳細な説明についても同様である。

【００１２】当該手段４によれば、表示領域内における可動体の動きと図柄の変化とが連動するように、画像制御部が図柄を変化させ、動作制御部が可動体を動かす。すなわち、表示領域内で動いた可動体に合わせて図柄が変化し、あるいは逆に表示領域内で変化した図柄に合わせて可動体が動くことになる。こうすれば、可動体と図柄が連動して動く様子を見て楽しむだけでなく、連動する動きが特典獲得に関係するので当該様子を見る楽しみが増加する。

【００１３】

【発明の実施の形態】以下、本発明における実施の形態を図面に基づいて説明する。

〔実施の形態１〕実施の形態１は、可動体としてのハンマーを備えたパチンコ機に本発明を適用した例である。当該実施の形態１は、図１～図１２を参照しながら説明する。

【００１４】図１には遊技機に相当するパチンコ機１０の外観を正面図で示す。図１に示すパチンコ機１０の遊技盤面１２上には、通過するパチンコ球を検出するゲートセンサ２２，４８をそれぞれ有するゲート２４，４６、入賞したパチンコ球を検出する始動口センサ５０を有する第１種始動口２０、パチンコ球が大入賞口開放期間（例えば２０秒間）内に入賞すると大当たり遊技状態を所要回数（例えば１６回）内で継続することができるＶゾーン４４を有する大入賞口２６、後述するようにハンマー６８や普通図柄表示器７２，特別図柄表示器６４等を有する複合装置１４、その他に一般の入賞口や風車，釘などが適宜に配置されている。大入賞口２６はソレノイド４２によって開閉される蓋６０を有する。この大入賞口２６の下方には入賞したパチンコ球を検出する始動口センサ５４を有する下部始動口５６を設ける。当該下部始動口５６は第１種始動口２０と同等の機能を備える。なお、第１種始動口２０や下部始動口５６は、いずれもパチンコ球が入賞すると通常の入賞口と同様に賞球を払い出す。

【００１５】図２に示す複合装置１４は、支軸７０を中心に上下方向に往復運動が可能に構成したハンマー６８、普通図柄を変動または停止して表示する普通図柄表示器７２、画像を表示する特別図柄表示器６４、普通図柄の変動中にゲート２４，４６を通過したパチンコ球の個数を表示する保留球ランプ６２、特別図柄の変動中に第１種始動口２０や下部始動口５６に入賞したパチンコ球の個数を表示する保留球ランプ６６等を有する。以下、保留球ランプ６６の表示によって認識できる数を「保留球数」と呼ぶ。普通図柄表示器７２は複数個の発光体（例えば緑色を発するＬＥＤと赤色を発するＬＥＤ）からなり、ゲート２４，４６にパチンコ球が通過したときに変動が始まって所定時間経過後に停止する。具体的には発光体を点滅等させて変動を行う。そして、特定の発光体（例えば赤色のＬＥＤ）が点灯または消灯する状態で停止すると、下部始動口５６の蓋を一定期間（例えば４秒間）だけ開ける。

【００１６】画像表示部に相当する特別図柄表示器６４は例えば液晶表示器を用い、画像として特別図柄（例えば絵柄や英数字，記号等）や装飾図柄等を表示する。この特別図柄表示器６４に表示する特別図柄は、第１種始動口２０や下部始動口５６にパチンコ球が入賞すると変動し始め、所定時間経過後に停止するようになってい

る。なお、特別図柄表示器６４として液晶表示器を用いたが、ＣＲＴやＬＥＤ表示器，プラズマ表示器などのように画像が表示可能な如何なる表示器を用いてもよい。また、普通図柄表示器７２と特別図柄表示器６４とを別個に用いたが、同一の表示器で双方を兼用するものとしてもよい。保留球ランプ６２，６６は、それぞれが複数個の発光体（例えば４個のＬＥＤ）からなる。

【００１７】可動体に相当するハンマー６８を動かすための構成例を図３に示す。図示する矢印Ｄ４方向（図面左右方向）に進退可能なロッド８４を有するソレノイド８６は、後述するメイン制御基板１００によって動きが制御される。ソレノイド８６で発生した動力はトルク伝達機構を通じてハンマー６８に伝達し、ハンマー６８を矢印Ｄ２方向（図面上下方向）に往復運動させる。以下、トルク伝達機構の具体例について説明する。ロッド８４の先端部には、結合部材８２を介して係合部材７６を設ける。この係合部材７６と係合する係合片７８は、支軸８０を中心に回転（正回転，逆回転，正逆回転のいずれでもよく、回動を含む）する回転板７４に設ける。回転板７４には支軸８０に対してほぼ反対側に扇板８８を一体に形成し、当該扇板８８の円弧（周縁）部位にギア歯を設ける。ハンマー６８は支軸７０を中心に回転する回転部材９０に固定し、当該回転部材９０の円周上には上記扇板８８のギア歯と噛み合うギア歯を設ける。この機構によれば、ロッド８４の進退運動は係合部材７６と係合片７８を通じて支軸８０を中心に往復回転する回転運動に変換される。この回転運動はギア歯を介してハンマー６８に伝わり、パチンコ機１０の正面から見るとハンマー６８は支軸７０を中心に上下方向に往復運動する。なお、トルク伝達機構は上述した構成に限らず、他の構成としてもよい。具体的には、ソレノイド８６に代わる他の駆動体（例えばモータ等）や、ギア歯に代わる伝達部（例えばベルト，チェーン，ラック＆ピニオン等）を用いてもよく、さらにはトルクコンバータ等を用いてもよい。また、ソレノイド８６やモータ等の駆動体によってハンマー６８を直接運動させるように構成してもよい。

【００１８】図１に戻って、パチンコ機１０における遊技盤面１２の下方には、賞球を含むパチンコ球を一時的に貯留する下皿３６や、タバコの吸い殻等を入れる灰皿３８、遊技者の手が触れているか否かを検出するタッチセンサ３４を備えるハンドル３２、賞球の受皿である上皿３０の内部に設けており効果音や音楽等を出すスピーカ４０などを備える。また、ガラス枠１８の開放を検出する枠開放センサ２８や、パチンコ機１０の遊技内容等に合わせて適切な位置に配置されている発光体からなるランプ類１６も備える。

【００１９】次に、パチンコ機１０によるパチンコ遊技を実現するメイン制御基板１００（動作制御部）と、メイン制御基板１００から送られた表示指令を受けて特別図柄表示器６４に画像を表示する表示制御基板２００（画像制御部）とについて、これらの概略構成を示した図４を参照しながら説明する。これらのメイン制御基板１００および表示制御基板２００は例えばパチンコ機１０の背面側に設ける。図４に示すメイン制御基板１００はＣＰＵ（プロセッサ）１１０を中心に構成し、遊技制御プログラムや所要の遊技データ（例えば大当たり値等）を格納するＲＯＭ１１２、各種の乱数，データ，入出力信号等を格納するＲＡＭ１１４、各種の入力装置から送られた信号を受けてメイン制御基板１００内で処理可能なデータ形式に変換する入力処理回路１０２、ＣＰＵ１１０から送られた作動データを受けて各種の出力装置を作動させる出力処理回路１０４、ＣＰＵ１１０から送られた表示データを受けて各種の表示体を適宜に表示（点灯・消灯を含む）する表示制御回路１０６、表示制御基板２００に対して所要のデータを送信する通信制御回路１１６等を有する。これらの構成要素は、いずれもバス１１８に互いに結合されている。

【００２０】ＣＰＵ１１０はＲＯＭ１１２に格納された遊技制御プログラムを実行してパチンコ機１０による遊技を実現するが、当該遊技制御プログラムには後述する第１種始動口処理等を実現するためのプログラムをも含む。ＲＯＭ１１２にはＥＰＲＯＭを用い、ＲＡＭ１１４にはＤＲＡＭを用いるが、他の種類のメモリを用いてもよい。当該他の種類のメモリとしては、ＥＥＰＲＯＭ，ＳＲＡＭ，フラッシュメモリ等がある。入力処理回路１０２が信号を受ける入力装置としては、例えば始動口センサ５０，５４、ゲートセンサ２２，４８、入賞センサ（Ｖゾーンセンサ５２等）あるいは他のセンサ（タッチセンサ３４，枠開放センサ２８等）などがある。出力処理回路１０４が信号を出力する出力装置としては、例えばソレノイド４２，８６等がある。表示制御回路１０６が表示する表示体としては、例えばランプ類１６や保留球ランプ６２，６６、あるいは普通図柄表示器７２等がある。通信制御回路１１６は、必要に応じてさらに図示しない枠制御基板やホールコンピュータ等に対しても所要のデータを送信することができる。

【００２１】次に、表示制御基板２００はＣＰＵ２１０を中心に構成し、表示制御プログラムや所要の表示データ（例えば表示指令に対応する表示情報や複数の変動パターン等）を格納するＲＯＭ２０２、表示指令，表示情報，入出力信号等を格納するＲＡＭ２０４、メイン制御基板１００から送信されたデータを受信しする通信制御回路２０６、所要の画像を生成するキャラクタジェネレータ２１２、ＣＰＵ２１０から送られた表示情報を受けて特別図柄表示器６４に対して画像を加工して表示するＶＤＰ（Video Display Processor）２１４等を有する。これらの構成要素は、いずれもバス２０８に互いに結合されている。

【００２２】ＣＰＵ２１０はＲＯＭ２０２に格納された

表示制御プログラムを実行して特別図柄表示器６４に画像を表示するが、当該表示制御プログラムには後述する画像表示処理等を実現するためのプログラムをも含む。ＲＯＭ２０２にはＥＰＲＯＭを用い、ＲＡＭ２０４にはＤＲＡＭを用いるが、他の種類のメモリを用いてもよい。当該他の種類のメモリとしては、ＥＥＰＲＯＭ，ＳＲＡＭ，フラッシュメモリ等がある。通信制御回路２０６は、必要に応じてさらに図示しない枠制御基板やホールコンピュータ等に対しても所要のデータを送信することができる。キャラクタジェネレータ２１２が生成する画像としては、例えば文字（英数字や漢字等），図柄（特別図柄や装飾図柄等），アニメーション等の動画，静止画，映像等がある。ＶＲＡＭやパレットＲＡＭ等を有するＶＤＰ２１４は、表示情報に対応する文字，図柄，背景等のデータをキャラクタジェネレータ２１２で生成して読み込み、配色指定及びスプライト処理等の画像編集を行なってＶＲＡＭやパレットＲＡＭにデータ展開した上で、最終的に映像信号や同期信号等を特別図柄表示器６４に出力する。

【００２３】上記のように構成したパチンコ機１０において、本発明を実現するためにメイン制御基板１００や表示制御基板２００で行う処理手順について図５～図１０を参照して説明する。ここで、図５には第１種始動口処理の内容を、図６には図柄変動処理の内容を、図７には変動表示処理の内容を、図８にはリーチ処理の内容を、図９には連動変動処理の内容を、図１０には画像表示処理の内容をそれぞれフローチャートで示す。これらの処理手順のうち、第１種始動口処理，図柄変動処理，変動表示処理，リーチ処理，連動変動処理は、いずれも図４に示すメイン制御基板１００においてＲＯＭ１１２に格納されている遊技制御プログラムをＣＰＵ１１０が適当なタイミング（例えば４ミリ秒ごとの周期）で実行して実現する。また、画像表示処理は表示制御基板２００においてＣＰＵ２１０とＶＤＰ２１４が適当なタイミングでプログラムを実行して実現する。また、後述するハンマー６８と画像（特別図柄や装飾図柄等）の同期などに必要な時間計測は、上述した４ミリ秒ごとの周期でプログラムを実行する毎に当該実行回数をカウントすることによって行う。なお、以下の説明において「加算する」とは通常は１だけ保留球数を増やすことを意味するが、遊技状態等に応じて適宜に２以上ずつ増やす場合を含む。これに対して「減算する」とは、保留球数を減らす点を除いて加算する場合と同様である。また、第１種始動口２０と下部始動口５６とは同様に機能するので、説明を簡単にするために第１種始動口２０を例にして説明する。さらに、特別図柄表示器６４に表示する画像の例としては、三つ（左側，中側，右側）の変動領域を区画してそれぞれ図柄群を変動し、左側の変動領域に左図柄を、中側の変動領域に中図柄を、右側の変動領域に右図柄を停止する態様を適用する。

【００２４】図５に示す第１種始動口処理は、第１種始動口２０に対するパチンコ球の入賞判別を実現する。まず、第１種始動口２０にパチンコ球が入賞したか否かを判別する〔ステップＳ１０〕。具体的には、図４において始動口センサ５０から検出信号を受けると入賞した（ＹＥＳ）と判別し、当該検出信号を受けなければ入賞していない（ＮＯ）と判別する。もし、第１種始動口２０にパチンコ球が入賞すると、保留球数が上限値（例えば４）に達したか否かを判別する〔ステップＳ１２〕。保留球数が上限値に達していなければ（ＮＯ）、その保留球数を加算する〔ステップＳ１４〕。加算した保留球数に応じて保留球ランプ６６のＬＥＤを点灯する。その後、各種乱数の読み込みと記憶を行い〔ステップＳ１６〕、第１種始動口処理を終了する。なお、第１種始動口２０にパチンコ球が入賞していない場合（ステップＳ１０のＮＯ）や、保留球数が上限値に達した場合（ステップＳ１２のＹＥＳ）には、何もせずにそのまま第１種始動口処理を終了する。

【００２５】ここでステップＳ１６で読み込んでＲＡＭ１１４に記憶する各種乱数には、大当たり判定用乱数ＲＡ，大当たり図柄用乱数ＲＢ，リーチパターン乱数ＲＣ，確率変動用乱数ＲＤ等がある。大当たり判定用乱数ＲＡは、大当たりか否かを判別するために用いる。大当たり図柄用乱数ＲＢは、大当たり判定用乱数ＲＡによって大当たりと判別された場合において、特別図柄表示器６４に停止して表示する大当たり図柄（特定図柄の組み合わせ）を特定するために用いる。リーチパターン乱数ＲＣは、特別図柄表示器６４に表示されたリーチ図柄（所定図柄の組み合わせ）等に応じて、リーチに達してから変動を停止するまでの表示パターンを特定するために用いる。「リーチ」または「リーチ状態」とは、未だに変動している残りの特別図柄を除き、他の特別図柄がリーチ図柄と一致している状態を意味する。確率変動用乱数ＲＤは、大当たりになった後に大当たりになる確率を変更するか否かを判別するために用いる。

【００２６】図６に示す図柄変動処理は、特別図柄表示器６４に図柄群を変動または停止する表示を実現する。まず保留球数が正数（すなわち保留球数＞０を満たす）か否かを判別する〔ステップＳ２０〕。保留球数が正数のときは（ＹＥＳ）、上記ステップＳ１６で記憶した大当たり判定用乱数ＲＡを読み込むとともに〔ステップＳ２２〕、次回の処理に備えて保留球数を減算する〔ステップＳ２４〕。減算した保留球数に応じて保留球ランプ６６のＬＥＤを点灯する。そして、変動表示処理を実行する〔ステップＳ２６〕。変動表示処理の具体的な内容について、図７を参照しながら説明する。

【００２７】図７に示す変動表示処理は、図柄群を変動し始めてから停止するまでの表示を実現する。まず「大当たり」か否かを判別する〔ステップＳ４０〕。具体的には、上記ステップＳ２２で読み込んだ大当たり判定用

乱数ＲＡが大当たり値と一致したか否かによって判別する。大当たり値は通常は１個であるが、遊技状態（例えば確率変動）等によっては複数個としてもよい。もし「大当たり」と判別されたときは（ＹＥＳ）、図５のステップＳ１６で記憶した大当たり図柄用乱数ＲＢを読み込み〔ステップＳ４２〕、図柄群を変動させ始めるべく後述するステップＳ４４に進む。当該大当たり図柄用乱数ＲＢの値に応じて、最終的に停止して確定する予定の図柄（以下「停止予定図柄」と呼ぶ。）を決定する。一方、ステップＳ４０で「はずれ」と判別されたときは（ＮＯ）、はずれ図柄を特別図柄表示器６４に表示するためにはずれ図柄データをＲＡＭ１１４から読み込んだ後〔ステップＳ６０〕、当該はずれ図柄にリーチ図柄を含むか否かを判別する〔ステップＳ６２〕。リーチ図柄は例えば左図柄と右図柄の組み合わせが該当し、通常のパチンコ機１０では同じ図柄（いわゆるゾロ目）である。もしリーチ図柄を含むならば（ＹＥＳ）、最終的には「はずれ」になるが途中でリーチに達するので後述するステップＳ４４に進む。もしリーチ図柄を含まなければ（ＮＯ）、後述するステップＳ６４に進む。

【００２８】表示制御基板２００に表示指令を送って図柄群を変動し始めた後〔ステップＳ４４〕、リーチ処理を実行する〔ステップＳ４６〕。表示制御基板２００で行われる処理については後述することとし、まずリーチ処理の具体的な内容について図８を参照しながら説明する。図８に示すリーチ処理は、リーチ表示およびリーチパターンに基づく変動を実現する。まず図５のステップＳ１６で記憶したリーチパターン乱数ＲＣを読み込み〔ステップＳ７０〕、リーチパターンを決定する〔ステップＳ７２〕。リーチパターンの決定は、例えば図７のステップＳ４２（またはステップＳ６０）で決定した停止予定図柄と、図８のステップＳ７０で読み込んだリーチパターン乱数ＲＣとに基づいて以下に示す表１に従って行う。当該表１には図柄の関係と、０から１０までのいずれかの数値を取り得るリーチパターン乱数ＲＣとの設定例を示す。図柄の関係とは、リーチ図柄と中図柄との間における図柄のずれであって、変動方向を考慮して２図柄前，１図柄前，同一図柄，１図柄後，２図柄後，他の図柄（例えば３図柄前や３図柄後等）に分けている。例えば、リーチ図柄が図柄「７」であるときに中図柄が図柄「６」であれば、リーチ図柄からみた中図柄は「１図柄前」となる。

【００２９】

【表１】

図柄の関係＼乱数値	0	1	2	3	4	5	6	7	8	9	10
２図柄前	α	α	α	α	β	γ	γ	δ	δ	δ	ζ
１図柄前	α	β	β	γ	γ	γ	δ	δ	ζ	ζ	ζ
同一図柄	α	β	γ	γ	γ	δ	δ	δ	ε	ε	ζ
１図柄後	α	β	β	γ	γ	δ	δ	δ	ζ	ζ	ζ
２図柄後	α	α	α	α	β	γ	γ	δ	δ	δ	ζ
他の図柄	α	α	α	α	α	α	α	β	β	δ	ζ

【００３０】上記表１の例では、六つのリーチパターンα，β，γ，δ，ε，ζが設定されている。例えばリーチに達した後であって中図柄が停止して大当たり図柄を表示した後、すぐに可動体としてのハンマー６８の動きと特別図柄表示器６４に表示する画像（図柄群の変動と停止を含む）とが連動して全ての特別図柄が一図柄ずつ変更されるリーチパターン（以下「連動変動アクション」と呼ぶ。）をリーチパターンβとする。ここで、リーチパターンα，β，γ，δ，ε，ζについて、各表示内容の概要を表２に例示する。

【００３１】

【表２】

リーチパターン	表示内容の概要
α	ノーマルアクション
β	連動変動アクション
γ	再抽選アクション
δ	正逆変動
ε	移動位置で２回アクション
ζ	図柄の拡大アクション

【００３２】なお、表２に示す「アクション」とは、アニメーション等を行うことである。「再抽選アクション」とは停止した特別図柄（左図柄，中図柄，右図柄）によって「はずれ」になった後、変動領域等で再び図柄

群の変動を行なって大当たりか否かの再抽選を行う。「正逆変動」は停止の一態様であり、特別図柄表示器６４の所定位置（例えば画面中央を通る水平線）を中心に特別図柄を所定方向に所定範囲（例えば上下方向に半図柄分）だけ揺れ動かす。「移動位置」は特別図柄表示器６４における画面上の位置であって、上記所定位置とは原則として異なる。「図柄の拡大アクション」とはリーチ図柄を中図柄の変動中に拡大して表示する状態を意味する。

【００３３】ここで、所定の条件が成立すると、上記表１におけるリーチパターンα，β，γ，δ，ε，ζの位置や個数等の設定を変更して（変化させて）もよい。所定の条件としては、例えば特別図柄が指定図柄（特定図柄，特定図柄の組み合わせを含み、例えば図柄「３３３」である）で停止した場合や、パチンコ機１０の種類や日時等に応じて条件を適切に変えてもよい。こうすれば、遊技者は大当たりになる期待感を特別図柄の全てが停止するまで維持することができる。また、所定の条件が成立すると、変動領域で変動する図柄の数や種類あるいは図柄群の構成等を変化させてもよい。こうすれば連動変動アクションの態様が変化してゆき、場合によっては連動変動アクションの実行によって大当たりの可能性が高くなる。したがって、遊技者は連動変動アクションによる表示態様の変化とともに、大当たりになる期待感を持って遊技することができる。

【００３４】リーチパターンを決定した後、表示制御基板２００に表示指令を送って特別図柄表示器６４にリーチ図柄を表示する〔ステップＳ７４〕。リーチ図柄は特別図柄表示器６４に表示するが、他の表示器のみに表示してもよく、その両方に表示してもよい。こうすれば、特別図柄表示器６４以外の表示器にもリーチ図柄等が表示されるので、リーチ図柄が何であるかを認識しやすくなる。なお、リーチ図柄を表示する際には、さらにリーチに達したことを遊技者に報知してもよい。当該報知としては、例えば「リーチ」の文字や所定のアニメーションなどを表示し、音声や特定の効果音をスピーカ４０から出し、遊技者が触れるハンドル３２や遊技者が座る椅子を振動させる等の態様がある。こうすれば、遊技者はリーチに達したことをより確実に認識することができる。

【００３５】その後、ステップＳ７２で決定したリーチパターンがリーチパターンβ（特定のリーチパターン）か否かによって処理を分ける〔ステップＳ７６〕。もし、リーチパターンβ以外のリーチパターンのときは（ＮＯ）、表示制御基板２００に表示指令を送ってステップＳ７２で決定したリーチパターンで変動を行なった後に停止する〔ステップＳ８０〕。この停止によって特別図柄表示器６４には確定した中図柄が表示され、今回の抽選における特別図柄（左図柄，中図柄，右図柄）が確定する。一方、リーチパターンβのときは（ステップＳ７６のＹＥＳ）、連動変動処理を実行する〔ステップＳ７８〕。当該連動変動処理の具体的な内容について図９を参照しながら説明する。

【００３６】図９に示す連動変動処理は、可動体としてのハンマー６８の動きと特別図柄表示器６４に表示する画像（特別図柄や装飾図柄等）との連動を実現する。まず、上記ステップＳ４０と同様に大当たり判定用乱数ＲＡが大当たり値と一致する否かによって大当たりか否かを判別する〔ステップＳ９０〕。もし、大当たりのときは（ＹＥＳ）、以下の処理を実行する。すなわち、変動中の特別図柄を停止して停止予定図柄を表示し〔ステップＳ９２〕、再変動を行う回数（以下「再変動回数」と呼ぶ。）ｎを決定し〔ステップＳ９４〕、さらに停止予定図柄を変更する〔ステップＳ９６〕。再変動は例えば三つの変動領域で表示する全ての特別図柄（左図柄，中図柄，右図柄）を同期させて始めは高速で変動する態様であり、再変動回数ｎの決定は例えば２回～１０回の範囲内であって乱数やデータテーブル等に基づいて行う。停止予定図柄の変更は最終的に停止する特別図柄を再変動回数ｎと同様の方法で決定するが、確率変動用乱数ＲＤと変更後の停止予定図柄との間で整合を図る。例えば、確率変動用乱数ＲＤによって確率変動であるときに、確率変動でない特別図柄が停止予定図柄に変更される場合がある。この場合には、再変動回数ｎを調整（加算または減算）して変更後の停止予定図柄が確率変動の特別図柄になるようにする。このことは、確率変動用乱数ＲＤによって確率変動でないときも同様である。

【００３７】そして、特別図柄表示器６４の表示画面を叩くように演出するためにハンマー６８を振り下した後〔ステップＳ９８〕、装飾図柄の一つであって特別図柄の背景として表示する背景図柄を上記ハンマー６８の動きに連動して表示する〔ステップＳ１００〕。ハンマー６８の動きは、図4に示すＣＰＵ１１０から作動データを出力処理回路１０４を介してソレノイド８６に伝達することによって実現する。さらに特別図柄について再変動を始めると〔ステップＳ１０２〕、振り下したハンマー６８を振り上げて原位置に復帰させる〔ステップＳ１０４〕。もし、再変動回数ｎが０でなければ（ステップＳ１０６のＮＯ）、ｎ図柄前で再変動を一旦停止するとともに〔ステップＳ１０９〕、保留球数の場合と同様に再変動回数ｎを減算し〔ステップＳ１０８〕、上記ステップＳ９８～Ｓ１０４を繰り返し実行する。したがって、ハンマー６８の振り下ろしに連動して背景図柄を変化させるとともに、特別図柄の再変動を行う際にハンマー６８を振り上げる態様は再変動回数ｎだけ繰り返すことになる。この繰り返しによってステップＳ１０９で表示される特別図柄は、例えば再変動回数ｎ＝７のときには「０００」→「１１１」→「２２２」→…→「７７７」と変化してゆく。その後、再変動回数ｎが０になると（ステップＳ１０６のＹＥＳ）、ステップＳ９６で変

更した停止予定図柄で再変動を停止し〔ステップＳ１０７〕、連動変動処理を終了する。またステップＳ９０で大当たりでなければ（ＮＯ）、例えば中図柄をはずれ図柄で停止し〔ステップＳ９７〕、連動変動処理を終了する。こうして連動変動処理を終了すると、さらに図８に示すリーチ処理も終了する。

【００３８】上記連動変動処理を実行すると、ハンマー６８を振り下すごとに再変動を開始するので、遊技者は望ましい特別図柄で停止することを期待しながらハンマー６８の動きを見るようになる。また、ステップＳ９４で決定する再変動回数ｎは通常は毎回異なるので、遊技者は最終的に何回目で停止するのかを予測できない。つまり、確率変動の特典がある大当たり図柄で停止するのか、あるいは当該特典のない大当たり図柄で停止するのかを予測できない。よって遊技者は特別図柄表示器６４を見る楽しみとともに、あと何回再変動するかスリルと期待感を持って遊技することができる。さらに、図９に示す連動表示処理では大当たり後の特別図柄を１回だけ変更しているが（ステップＳ９６）、再変動に伴って大当たりか否かの抽選を行なっている訳ではない。遊技者に確率変動等の特典を期待する期待感を与えるためには、再変動の際（毎回あるいは特定の時期）に特別図柄を変更してもよい。ここで、上記連動変動処理を実行した場合のタイムチャートを次表に示す。

【００３９】

【表３】

時間（秒）	特別図柄	時間（秒）	背景図柄	時間（秒）	可動体（ハンマー）
0.00	全特別図柄が変動開始	0.00	通常変動時の表示開始	0.00	原位置で停止
6.77	左図柄が「０」で停止				
7.92	右図柄が「０」で停止（リーチ）	7.92	リーチ時の表示開始		
8.20	中図柄が低速に変化				
15.99	中図柄が「０」で停止（大当り決定）				
					（再変動１回目）
				19.05	ソレノイドＯＮし、ハンマーが振り下ろされる。
19.15	全ての特別図柄が大きく揺れながら１図柄スクロール（「１１１」）	19.15	背景図柄全体が大きく揺れる	19.15	画面に当たる
				19.65	原位置に戻る
20.88	揺れが小さくなる	20.88	揺れが小さくなる		
21.17	揺れ停止	21.17	揺れ停止		
					（再変動２回目）
				21.35	ソレノイドＯＮし、ハンマーが振り下ろされる。
21.45	全ての特別図柄が大きく揺れながら１図柄スクロール（「２２２」）	21.45	背景図柄全体が大きく揺れる	21.45	画面に当たる
				21.95	原位置に戻る
22.03	揺れが小さくなる	22.03	揺れが小さくなる	・	・
22.32	揺れ停止	22.32	揺れ停止	・	・
・	・	・	・	・	・
・	・	・	・	・	・
・	・	・	・	・	・
・	・	・	・	・	（再変動７回目）
・	・	・	・	27.98	ソレノイドＯＮし、ハンマーが振り下ろされる。
・	・	・	・	28.08	画面に当たる
・	・	・	・	28.58	原位置に戻る
・	・	・	・		
29.81	揺れ停止（最終的に大当り図柄「７７７」に確定）	29.81	揺れ停止		
	（終了）		（終了）		（終了）

【００４０】上記表３の例では、図柄群の変動開始から最終的に確定した特別図柄を停止するまでの過程を、特別図柄，背景図柄，ハンマー６８（可動体）に対応して示す。すなわち、図柄群の変動を開始した時を０秒とし、その後に行われる態様を経過時間とともに示している。以下時間を示すときは当該経過時間を意味する。具体的には、１５．９９秒後に最初の特別図柄「０００」を停止して表示し、１９．０５秒後にハンマー６８を振り下ろし、１９．１５秒後に特別図柄と背景図柄を震わせたり揺らし、この揺れを２１．１７秒後に止める。このとき、特別図柄は「１１１」になっている。振り下ろしたハンマー６８は、振り下ろしてから０．５秒後に復帰させている。特別図柄や背景図柄の振動や揺れは、ハンマー６８が表示画面を叩くタイミングを基準にしてその前後の動きや変化は予め決まっている。このようなハンマー６８を振り下ろしと、特別図柄と背景図柄の振動は再変動回数ｎだけ繰り返し、最終的に２９．８１秒後に揺れを止めて特別図柄「７７７」を表示する。このよ

うに、ハンマー６８を振り下ろしては再変動するという過程を繰り返す回数を遊技者は知り得ないので、遊技者は最終的にいつ止まるかを予測できず、また確率変動になるか否かも分からない。よって遊技者は期待感とスリルでドキドキしながら遊技することができる。

【００４１】リーチ処理を終えると図７に戻り、確率変動か否かを判別する〔ステップＳ４８〕。もし確率変動と判別されたときは（ＹＥＳ）、確率変動処理を実行した後〔ステップＳ５０〕、変動表示処理を終了する。確率変動か否かは、図５のステップＳ１６で記憶した確率変動用乱数ＲＤが所定値と一致しているか否か等によって行う。確率変動処理の内容については、周知であるので説明を省略する。なお、確率変動処理が実行されると、今回の大当たり遊技終了後から次回の大当たりになるまで、変動後に大当たり図柄で停止して大当たりになる確率が高まり、特別図柄の変動期間が短縮される。また、変動後に当たり図柄で停止して当たりになる確率が高まり、普通図柄の変動期間が短縮される。一方、確率変動でなければ（ステップＳ４８のＮＯ）、何もせずに変動表示処理を終了する。ここで、ステップＳ６２においてリーチ図柄でないときは（ＮＯ）、ステップＳ４４と同様に図柄群を変動し始め〔ステップＳ６４〕、所定の変動パターンに基づいて変動を行なった後にはずれ図柄で停止し〔ステップＳ６６〕、上記ステップＳ４８に進む。上記ステップＳ６４，Ｓ６６ではそれぞれ対応する表示指令を表示制御基板２００に送って実現する。

【００４２】変動表示処理を終えると図６に戻り、最終的に確定して特別図柄表示器６４に表示された特別図柄が大当たり図柄と一致するか否かを判別する〔ステップＳ２８〕。図７に示すステップＳ４０でも大当たりか否かを判別しているが、この判別はステップＳ２２で読み込んだ大当たり判定用乱数ＲＡに基づいて行なっている。しかし、ステップＳ２６の変動表示処理を実行している際などで外来ノイズ等の影響を受け、予定していた大当たり表示となるものがはずれ表示になることもある。したがって、パチンコ遊技の混乱を防止するため、特別図柄表示器６４に表示された特別図柄を優先して大当たりか否かの判別を行うものである。なお、外来ノイズ等の影響を受けにくく信頼性が高いパチンコ機１０では、大当たり判定用乱数ＲＡのみに基づいて「大当たり」か否かをステップＳ２８で判別してもよい。こうすれば処理速度が向上する。もし、確定した特別図柄が大当たり図柄と一致すれば（ＹＥＳ）、「大当たり」として大当たり処理を行い〔ステップＳ３０〕、図柄変動処理を終了する。大当たり処理は、例えば大入賞口２６の蓋６０を一定期間（例えば３０秒間）だけ開放し、入賞したパチンコ球の数に応じて賞球を払い出す等の大当たり遊技を行う。一方、確定した特別図柄が大当たり図柄と一致しなければ（ＮＯ）、「はずれ」としてはずれ処理を行い〔ステップＳ３２〕、図柄変動処理を終了する。なお、はずれ処理の内容については、周知であるので説明を省略する。

【００４３】次に、メイン制御基板１００から送られた表示指令を受けた表示制御基板２００が画像編集を行なって特別図柄表示器６４に画像を表示する画像表示処理について、図１０を参照しながら説明する。なお、メイン制御基板１００から送られた表示指令は、受信割り込みによって実行される別個の処理プログラムによって図４に示すＲＡＭ２０４等に設けた受信バッファに記憶されているものとする。図１０に示す画像表示処理では、まずＣＰＵ２１０が受信バッファに記憶した表示指令を読み込み〔ステップＳ１１０〕、読み込んだ表示指令に基づいて表示データを取得しＲＡＭ２０４に記憶する〔ステップＳ１１２〕。より具体的には、表示指令と表示データとの関係を規定しＲＯＭ２０２等に記憶したデータテーブルを参照して表示データを取得する。この表示データは画像編集を行うためのデータ要素（パラメータ）であり、例えばステータス番号，左図柄番号，左位置座標，中図柄番号，中位置座標，右図柄番号，右位置座標，アニメーション番号，ステータスフラグ，アニメーションタイマ等を有する。こうして取得した表示データを取得した２１０は、当該表示データをＶＤＰ２１４に伝達する。

【００４４】ＣＰＵ２１０から表示データを受けたＶＤＰ２１４は、当該表示データに基づいて文字，図柄，背景等のデータをキャラクタジェネレータ２１２から抽出し〔ステップＳ１１４〕、配色指定及びスプライト処理等の画像編集を行った後〔ステップＳ１１６〕、ＶＲＡＭやパレットＲＡＭ上にデータを展開する〔ステップＳ１１８〕。そして、展開したデータを画像信号に変換して特別図柄表示器６４に出力する〔ステップＳ１２０〕。こうして表示データに基づいて編集した図柄等を特別図柄表示器６４に表示させることができる。また、画像編集をハードウェアとしてＶＤＰ２１４で行うので、画像を高速に表示することができる。

【００４５】次に、上記図５～図１０に示すそれぞれの処理を実行して、ハンマー６８を動かすとともに特別図柄表示器６４に画像を表示する例について、図１１，図１２を参照しながら説明する。図１１，図１２には特別図柄表示器６４に表示する画像の例を示す。この例は「大当たり」になるケースの一例を示すものであって、多く発生する「はずれ」のケースについては図示と説明を省略する。なお、特別図柄「７７７」で大当たりになると確率変動になると仮定する。

【００４６】まず特別図柄表示器６４の表示画面には、図１１，図１２に示すように三つの変動領域ａ２，ａ４，ａ６のほかに、背景として例えば山，川，ヤシの木等を模した背景図柄（装飾図柄）を同時に表示する。図柄群の変動開始（図７のステップＳ４４，Ｓ６４）では、図１１（Ａ）に示す変動領域ａ２，ａ４，ａ６でほ

ぼ一斉に図柄群を変動させ始める。例えば図８のステップＳ７２でリーチパターンβを決定した後、リーチに達したことを遊技者に報知するためにリーチ図柄を表示する（図８のステップＳ７４）。図１１（Ｂ）の例では、変動領域ａ２の左図柄ｂ２と変動領域ａ６の右図柄ｂ６にそれぞれリーチ図柄として同一の特別図柄「０」を停止して表示している。その後、未だ変動領域ａ４で継続していた図柄群の変動を停止し、停止予定図柄を表示する（図９のステップＳ９２）。図１１（Ｃ）の例では、変動領域ａ２，ａ４，ａ６に大当たり図柄として特別図柄「０００」を停止して表示している。この時点では確率変動でないと分かったので、遊技者は大当たりなのだけれども少しガッカリする。

【００４７】次にハンマー６８を振り下ろし、その動きに連動して特別図柄および／または背景図柄を表示する（図９のステップＳ９８，Ｓ１００）。図１２（Ａ）の例では、実際には寸止めされるハンマー６８が表示画面を叩いたときに衝撃があったと遊技者に思わせるため、特別図柄や背景図柄をしばらく揺らし続ける。このとき衝撃音や振動音等をスピーカ４０から出すとより臨場感が増す。その後、変動領域ａ２，ａ４，ａ６では特別図柄の再変動を始めるとともに、ハンマー６８を原位置に復帰させ、さらに再変動の変動期間（例えば１０秒間）を経過すると変動領域ａ２，ａ４，ａ６に特別図柄を停止して表示する（図９のステップＳ１０２，Ｓ１０４，Ｓ１０９）。特別図柄の再変動は例えば当該特別図柄を震わせながらゆっくりとスクロールさせ、「０００」から「１１１」に変わってからスクロールを止める。図１２（Ｂ）の例では、ハンマー６８を振り上げて原位置に戻すとともに、変動領域ａ２，ａ４，ａ６には大当たり図柄として特別図柄「１１１」を停止して表示している。こうしたハンマー６８の振り下ろし／振り上げと特別図柄の再変動を再変動回数ｎだけ繰り返し行う（図９のステップＳ１０６）。そして、最終的に変更後の停止予定図柄を停止して表示する（図９のステップＳ１０７）。図１２（Ｃ）の例では、最終的に変動領域ａ２，ａ４，ａ６には大当たり図柄として特別図柄「７７７」を停止して表示している。この時点で確率変動と分かるので、遊技者は以後の大当たりを期待して喜ぶ。

【００４８】なお、ハンマー６８は図３，図１２等に示すように上下方向に往復運動できるように構成したが、さらに左右方向にも往復運動できるように構成してもよい。この場合には、三つの変動領域ａ２，ａ４，ａ６に対応して個別にハンマー６８を振り上げ／振り下ろしができるようになるので、左図柄ｂ２，中図柄ｂ４，右図柄ｂ６についてそれぞれ特別図柄を確定するための動作が行える。また、ハンマー６８を振り下ろした際に、特別図柄表示器６４に表示している特別図柄（左図柄ｂ２，中図柄ｂ４，右図柄ｂ６）を凹ませたり、飛ばしたり、あるいは粉々にする等の画像を表示してもよい。こうすれば現実味がより増すので、見ている遊技者の楽しみも増える。さらに、特別図柄の再変動は左図柄，中図柄，右図柄の全てを同期して行う態様に限らず、リーチ後に継続して変動する図柄群（あるいは変動領域）について再変動を行う態様としてもよい。例えば左図柄→右図柄→中図柄の順番で停止するパチンコ機１０では、ハンマー６８が変動領域ａ４を叩き次々に中図柄を変化させるように再変動を行う。こうすれば、残りの特別図柄の再変動によって大当たりを期待する期待感を持って遊技者は特別図柄表示器６４を見る。

【００４９】上記実施の形態１によれば請求項１に対応し、メイン制御基板１００（動作制御部）がハンマー６８（可動体）を動かすと、その動きに連動して表示制御基板２００（画像制御部）が特別図柄表示器６４（画像表示部）の変動領域ａ２，ａ４，ａ６を含む表示画面（表示領域）内に大当たり図柄（画像）を表示する｛図９のステップＳ９２～Ｓ１０７，Ｓ１０９、図１１（Ｃ），図１２（Ａ），図１２（Ｂ），図１２（Ｃ）参照｝。すなわち、特別図柄が大当たり図柄で停止した後の再変動において、当該表示画面にハンマー６８を入り込ませて再変動を停止させる。よってハンマー６８の動きに合わせて特別図柄が変化するので、特別図柄表示器６４を見る遊技者を飽きさせない。

【００５０】また請求項２に対応し、ハンマー６８の動きと特別図柄の変化とが連動するように、表示制御基板２００が特別図柄や装飾図柄等を変化させ、メイン制御基板１００がハンマー６８を動かした｛図９に示すステップＳ９８～Ｓ１０４、図１２参照｝。すなわち、特別図柄表示器６４の表示画面上で上下方向に動くハンマー６８に合わせて特別図柄の再変動と停止を行なって画像を変化させ、あるいは逆に当該表示画面で行う特別図柄の再変動と停止に合わせてハンマー６８を動かすことになる。よってハンマー６８と特別図柄の連動がより多様に変化するので、特別図柄表示器６４を見る遊技者をより飽きさせない。

【００５１】さらに請求項４に対応し、特別図柄表示器６４の表示画面内にハンマー６８が入り込むと表示制御基板２００は特別図柄を変化させ、その変化を特定図柄の表示に関連させた｛図９に示すステップＳ９８，Ｓ１００、図１２参照｝。そして、最終的に停止した大当たり図柄（特別図柄；画像）に応じて遊技者に特典を与える｛図６に示すステップＳ３０｝。こうすれば、ハンマー６８と特別図柄が連動して動く様子を見て楽しむだけでなく、連動する動きが特典獲得に関係するので当該様子を見る楽しみが増加する。

【００５２】〔実施の形態２〕実施の形態２は、可動体としてのキャラクタを備えたパチンコ機に本発明を適用した例である。当該実施の形態２は、図１３～図１６を参照しながら説明する。なお、パチンコ機１０の構成等は同様であるので、説明を簡単にするために実施の形態

２では実施の形態１と異なる点について説明する。また、図１３等において実施の形態１に示す要素（図３等）と同一の要素には同一の符号を付す。

【００５３】図２に示す複合装置１４に代わる図１３に示す複合装置９２は、矢印Ｄ６方向（図面上下方向）に往復運動が可能に構成した実体キャラクタ９４、普通図柄を変動または停止して表示する普通図柄表示器７２、画像を表示する特別図柄表示器６４、普通図柄の変動中にゲート２４，４６を通過したパチンコ球の個数を表示する保留球ランプ６２、特別図柄の変動中に第１種始動口２０や下部始動口５６に入賞したパチンコ球の個数を表示する保留球ランプ６６等を有する。

【００５４】ワニを模した実体キャラクタ９４は例えば板材を打ち抜いて装飾を施したもので構成し、複合装置９２に備えた出入口９２ａから出入りする。この実体キャラクタ９４はモータ９７で発生した動力を動力伝達機構を通じて受けて動く。以下、動力伝達機構の具体例について説明する。実体キャラクタ９４をラック９５に固定し、そのラック９５と噛み合うピニオン９６をモータ９７の回転軸９７ａに固定する。モータ９７は図４等に示すソレノイド８６に代わるものであり、メイン制御基板１００によって回転を制御する。したがって、メイン制御基板１００からモータ９７の回転を制御することにより、実体キャラクタ９４の動きを制御することができる。なお、上述したトルク伝達機構等の構成によって実体キャラクタ９４の動きを制御してもよい。

【００５５】図１４に示すリーチ処理は図８に示すリーチ処理とほぼ同様の処理を行うが、連動変動処理（ステップＳ７８）に代えて以下の処理を行う。すなわちリーチパターンβのときは（ステップＳ７６のＹＥＳ）、残りの図柄群の変動を継続するとともに、実体キャラクタ９４（実体の可動体）を模した仮想キャラクタ９８（仮想の可動体）を特別図柄表示器６４に表示する〔ステップＳ８２〕。そして、図柄群の変動と可動体の動きを連動した後〔ステップＳ８４〕、当該図柄群の変動と可動体の動きを止める〔ステップＳ８６〕。このステップＳ８２～Ｓ８４の具体例を図１５，図１６を参照して説明する。

【００５６】リーチに達してステップＳ８２を実行すると、図１５（Ａ）に示すように仮想キャラクタ９８を特別図柄表示器６４に登場させる。図１５（Ａ）の例では、画面右側から仮想キャラクタ９８が登場している。この仮想キャラクタ９８は実体キャラクタ９４を模した画像であり、図１５（Ｂ）に示すように登場後は実体キャラクタ９４がいる位置に向けて（例えば矢印Ｄ８方向に）移動する。図１５（Ｂ）の例では、水中に潜ろうとする仮想キャラクタ９８の尻尾が見えている。そしてステップＳ８４を実行すると、今度は図１６（Ａ）に示すように実体キャラクタ９４を登場させて特別図柄表示器６４の表示領域内に入り込ませる。図１６（Ａ）の例では、中図柄ｂ４を停止させるために実体キャラクタ９４が特別図柄表示器６４の表示領域内に入り込んでいる。その後、矢印Ｄ１０方向に行なっている図柄群の変動をスローにし、図１６（Ｂ）に示すように中図柄ｂ４の移動速度と実体キャラクタ９４の移動速度をほぼ一致させる。こうすれば、遊技者から見ると実体キャラクタ９４が中図柄ｂ４に噛みつきながら移動させているように見える。図１６（Ｂ）の例では、実体キャラクタ９４が中図柄ｂ４「５」に噛みつきながら移動しているように見える。さらにその後にステップＳ８６を実行することにより、図柄群の変動を停止するとともに、実体キャラクタ９４の動きを停止する。停止のタイミングは一致していてもよく、異なってもよい。また、仮想キャラクタ９８を実体キャラクタ９４がいる位置に向けて移動させ、その後は実体キャラクタ９４を動かしたので、模したワニの画像と可動体とが連動している。こうして模したワニの画像と可動体の連動がより多様に変化するので、特別図柄表示器６４を見る遊技者をより飽きさせない。

【００５７】上記実施の形態２によれば請求項３に対応し、特別図柄表示器６４の表示領域内に実体キャラクタ９４（可動体）が入り込むと、表示制御基板２００（表示制御部）が中図柄ｂ４（特別図柄；画像）を変化させたり、メイン制御基板１００（動作制御部）が実体キャラクタ９４を動かす｛図１４に示すステップＳ８２，Ｓ８４、図１５，図１６参照｝。当該中図柄ｂ４の変化や実体キャラクタ９４の動きは、実体キャラクタ９４が中図柄ｂ４に噛みつきながら移動して見える、すなわち力学的作用を及ぼしたように見える。この制御によって実際にはあり得ない実体キャラクタ９４（実体のある可動体）から中図柄ｂ４（実体のない画像）に力学的作用を及ぼす様子を演出することができる。したがって、実体キャラクタ９４と中図柄ｂ４の連動がより多様に変化するので、特別図柄表示器６４（画像表示部）を見る遊技者をより飽きさせない。

【００５８】なお、中図柄ｂ４（実体のない画像）から実体キャラクタ９４（実体のある可動体）に力学的作用を及ぼす様子を演出することも同様にできる。例えば、図１６（Ｂ）において図面上方向（矢印Ｄ１０と反対方向）に中図柄ｂ４と実体キャラクタ９４を速度をほぼ一致させて移動させると、中図柄ｂ４に噛みついた実体キャラクタ９４を引き上げているように見える。これらのことは、中図柄ｂ４を左図柄ｂ２，右図柄ｂ６，仮想キャラクタ９８に代えても同様である。その他、上下方向に移動する実体キャラクタ９４の一部分を作動可能に（例えば口を開閉可能に）構成したり、あるいは実体キャラクタ９４が中図柄ｂ４に噛みつく際に当該中図柄ｂ４の形状をつぶすように変形させるとなおよい。こうすれば現実味がより増すので、見ている遊技者の楽しみも増える。

【００５９】また請求項１に対応し、表示制御基板２０

０（画像制御部）が特別図柄表示器６４の表示領域内にリーチ図柄（所要の画像）を表示すると、メイン制御基板１００（動作制御部）は当該表示領域内に実体キャラクタ９４（可動体）を入り込ませる動きを制御する｛図１４に示すステップＳ８２，Ｓ８４、図１６参照｝。この例では、リーチ図柄の表示が所要のタイミングに相当する。よって実施の形態１と同様に実体キャラクタ９４と特別図柄の連動が変化するので、特別図柄表示器６４（画像表示部）を見る遊技者を飽きさせない。さらに請求項２に対応し、特別図柄表示器６４の表示領域内における実体キャラクタ９４の動きと特別図柄の変化とが連動するように、表示制御基板２００が特別図柄を変化させ、メイン制御基板１００が実体キャラクタ９４を動かした｛図１４に示すステップＳ８２，Ｓ８４、図１６参照｝。よって実施の形態１と同様に実体キャラクタ９４と特別図柄の連動がより多様に変化するので、特別図柄表示器６４を見る遊技者をより飽きさせない。そして請求項４に対応し、特別図柄表示器６４の表示領域内に実体キャラクタ９４が入り込むと表示制御基板２００は特別図柄を変化させ、その変化を特定図柄の表示に関連させた｛図１４に示すステップＳ８２，Ｓ８４、図１６参照｝。よって実施の形態１と同様に、実体キャラクタ９４と特別図柄が連動して動く様子を見て楽しむだけでなく、連動する動きが特典獲得に関係するので当該様子を見る楽しみが増加する。この場合、大当たりになる確率が高いときに仮想キャラクタ９８を登場させ実体キャラクタ９４を動かすと、仮想キャラクタ９８等を見た遊技者は大当たりになる期待感を持って遊技することができる。

【００６０】〔他の実施の形態〕上述したパチンコ機１０（遊技機）において、他の部分の構造，形状，大きさ，材質，配置および動作条件等については、上記実施の形態に限定されるものでない。例えば、上記実施の形態を応用した次の各形態を実施することもできる。

（１）上記各実施の形態では、パチンコ機１０に本発明を適用した。この形態に代えて、パチンコ機以外の他の遊技機（例えばスロットマシン，パチスロ機，アレンジボール機，雀球遊技機，テレビゲーム機等）であって少なくとも画像表示部と可動体とを備えたものにも同様に本発明を適用することができる。当該他の遊技機であっても、可動体の動きに合わせて画像が変化するので、画像表示部を見る遊技者を飽きさせない。

【００６１】（２）上記実施の形態１では、可動体として上下方向に往復運動可能なハンマー６８を適用した。この形態に代えて、回転運動が可能であってゴルフ用のものを模したパター９９を適用してもよい。当該パター９９の回転運動は、例えば図３に示す構成によって実現することができる。より具体的には、ハンマー６８の代わりにパター９９を回転部材９０に取り付け、ソレノイド８６やトルク伝達機構等を特別図柄表示器６４とほぼ平行に配置すればよい。また、メイン制御基板１００は図１４に示すリーチ処理を実行することによって、パター９９の回転角度や回転速度等を制御することができる。ここで、パター９９の回転運動と画像の動きとを連動させる例について図１７，図１８を参照しながら説明する。

【００６２】この例では、リーチ図柄「７７」でリーチになると、特別図柄表示器６４の表示領域には特別図柄を一時的に消去するとともにゴルフ場のグリーン３０２を模して表示する（図１７（Ａ），図１７（Ｂ），図１７（Ｃ），図１８（Ａ）参照）。このグリーン３０２にはカップ３０４がある。図１７（Ａ）に示すようにショットされたゴルフボール３００がグリーン３０２上で止まった後、パター９９を図１７（Ａ）に示す基準位置から所定方向（例えば矢印Ｄ１２方向）に回転させ始めると図１７（Ｂ），図１７（Ｃ）等のように当該パター９９が表示領域内に入り込む。さらにパター９９を回転させ続けると、図１７（Ｃ）に示すようにあたかもグリーン３０２上で止まっていたゴルフボール３００を打ったように当該ゴルフボール３００を動かし始める。そのゴルフボール３００が図１８（Ａ）に示すようにカップ３０４に入ると、図１８（Ｂ）に示すようにパター９９を基準位置に戻すとともに表示領域に所要の画像を表示する。すなわち「大当り」という文字とともに、変動領域ａ２，ａ４，ａ６にそれぞれ左図柄ｂ２，中図柄ｂ４，右図柄ｂ６として特別図柄「７７７」を表示する。

【００６３】こうすれば、大当たり予告を画像と可動体との連動によって演出することができる。また、パター９９の回転運動に伴う運動力をゴルフボール３００に及ぼすような力学的作用を表現することができるので、遊技者は実体のパター９９で実体のない仮想のゴルフボール３００を打っているように見える。このようにパター９９の動きに合わせてゴルフボール３００が動くようにしたので、特別図柄表示器６４を見る遊技者を飽きさせない。こうした連動の演出表示を行えば、その作用状態が視覚的に分かりやすく、動きを見ていて面白い。なお、こうした力学的作用は打つ（叩く）例だけでなく、他の自然現象（例えば押す，引っ張る，上げ下げする，落とす等）を模す場合についても同様に適用することができる。例えば、画像として風船を表示し、先の尖った部材（針や槍等）を往復運動可能に設ける。そして先の尖った部材で風船をつつくと、風船が破裂するように画像を変化させる。この場合も上記効果を得ることができる。

【００６４】（３）上記各実施の形態では、画像として特別図柄（左図柄ｂ２，中図柄ｂ４，右図柄ｂ６）を適用したが、特別図柄表示器６４で表示する特別図柄以外の図柄（チャンス図柄，第４図柄，装飾図柄等）や普通図柄表示器７２で表示する普通図柄等を適用してもよい。これらの画像であっても可動体と連動して変化する

ので、特別図柄表示器６４を見る遊技者を飽きさせない。また、画像表示部として特別図柄表示器６４を適用したが、普通図柄表示器７２や他の表示器を適用してもよい。これらの表示器であっても、当該表示器に表示する画像の変化と可動体の動きとを連動させることができる。したがって、普通図柄表示器７２や他の表示器を見る遊技者を飽きさせない。さらに、可動体が入り込む表示領域は特別図柄表示器６４のほぼ全部に適用したが（図１２（Ｂ），図１６（Ａ），図１７（Ｃ）等を参照）、特別図柄表示器６４の一部の表示領域としてもよく、他の表示器の表示領域としてもよい。さらには、一つの表示領域だけでなく複数の表示領域についても適用することが可能である。二の表示領域を有する例では、次のように制御する。すなわち、当該表示領域に表示する画像の変化に連動して、一方の表示領域内に可動体を入り込ませる。このとき他方の表示領域に表示する画像は可動体の動きとは無関係に表示してもよく、あるいは可動体の動きと連動して表示してもよい。こうすれば可動体と画像の連動がより多様に変化するので、特別図柄表示器６４を見る遊技者をより飽きさせない。

【００６５】（４）上記各実施の形態では、画像と可動体との連動をリーチ後に行うリーチパターンの一つとして実現した（図８，図１４参照）。この形態に代えて（あるいは加えて）、リーチ前に行う図柄群の変動や、確率変動、大当たり遊技中におけるアニメーション表示（装飾図柄等）などのように特別図柄表示器６４で表示可能な全ての態様について画像と可動体との連動を実現してもよい。例えばリーチ前に行う図柄群の変動では、リーチになる確率が高まったときに（所要のタイミングに達すると）画像と可動体を連動させる。こうすれば、可動体と画像の連動がより多様に変化するので、特別図柄表示器６４を見る遊技者をより飽きさせない。さらに、遊技者はリーチや確率変動等になる期待感を持って遊技することができる。

【００６６】（５）上記各実施の形態では、一の可動体（ハンマー６８，実体キャラクタ９４，パター９９等）を動かすと、その動きに連動して一の画像表示部（特別図柄表示器６４）に画像を表示した。この形態に代えて、一の可動体の動きに連動して複数の画像表示部に画像を表示してもよく、複数の可動体の動きに連動して一の画像表示部に複数の画像を表示してもよい。また、可動体はハンマー６８，実体キャラクタ９４，パター９９に限らず、表示領域に入り込む動きが可能な他の任意の可動体を適用してもよい。例えば複数の可動体の動きに連動して一の画像表示部に複数の画像を表示する態様としては、図２に示す複合装置１４に対して、図１３に示す実体キャラクタ９４を複数設ける。そして、大当たりになる前に複数の実体キャラクタ９４を動かし、大当たり後の再変動でハンマー６８を動かす。こうすれば画像と可動体との連動態様が多様化するので、連動して動く様子を見る楽しみをより遊技者に与えることができる。また、画像表示部に表示する画像によって可動体が一方的に作用を受けるように連動して動かす構成としてもよい。例えば、複合装置１４に備えた出入口９２ａと同様の出入口を横並びに複数設け、当該複数の出入口からそれぞれモグラ（実体キャラクタ）が出てきたり引っ込んだりする動きが可能に構成する。そして画像表示部に模して表示したハンマーでいずれか任意のモグラを叩くアニメーションを表示する。もし遊技者から見て画像表示部のハンマーが出入口から出てきたモグラに当たったと認識できるときは、そのモグラを引っ込ませる。こうして画像の変化に合わせて可動体が動く態様が実現されるので、画像表示部を見る遊技者を飽きさせない。

【００６７】（６）上記各実施の形態では、発光（発色）させて画像を表示する特別図柄表示器６４を画像表示部として適用した。この形態に代えて、表示面に表した画像を表示するドラム表示器等のような機械的表示器を画像表示部として適用することもできる。例えばドラム表示器は一または複数の回転体を有し、その回転体の表面（すなわち表示面）に複数の画像を適切に配置して表す。こうして回転体に表された画像を遊技者が認識できる部位が表示領域に相当する。そして、モータ等の駆動体によって回転体を正回転，逆回転，正逆回転や回転速度等を回転制御することにより図柄群の変動等を実現する。この構成によれば可動体の動きに連動させて回転体の回転制御を行うと、表示領域内の画像を変化させることができる。したがって、画像表示部を見る遊技者を飽きさせない。

【００６８】

【他の発明の態様】以上、本発明の実施の形態について説明したが、この実施の形態には特許請求の範囲に記載した発明の態様のみならず他の発明の態様を有するものである。この発明の態様を以下に列挙するとともに、必要に応じて関連説明を行う。

【００６９】〔態様１〕　画像を表示可能な表示領域を備える画像表示部と、前記画像の表示を制御する画像制御部と、前記表示領域内に入り込む動きが可能な可動体と、前記画像制御部が前記表示領域に所要の画像を表示すると、前記表示領域内に前記可動体を入り込ませる動きを制御する動作制御部とを有する遊技機。

〔態様１の関連説明〕　本態様によれば、画像制御部が表示領域に所要の画像を表示すると、動作制御部は当該表示領域内に可動体を入り込ませる動きを制御する。表示領域内に可動体が入り込むと、遊技者は当該表示領域内で画像と可動体とがリアルに連動して動くように見える。こうした可動体の動きは表示領域に所要の画像が表示されると行われるので、画像の内容によって変化が生ずる。こうして可動体の動きに合わせて画像が変化するので、画像表示部を見る遊技者を飽きさせない。

【００７０】〔態様２〕　請求項１から５のいずれか一

項または上記態様１に記載した遊技機において、所要の条件を満たすと、動作制御部が可動体を動かす遊技機。

〔態様２の関連説明〕　本態様によれば、所要の条件を満たして初めて動作制御部が可動体を動かして、当該可動体と画像の連動が実現される。遊技者は可動体と画像の連動を見たときには所要の条件を満たしたことを知ることができるので、所要の条件を満たしたときに行われる遊技や遊技者に与えられる特典等を報知することができる。その意味では可動体と画像の連動が報知手段となる。したがって、遊技者への報知をより確実に伝達することができる。なお、「所要の条件」は遊技機の種類，日時，遊技状態等に応じて適切に定める条件であって、当該条件は固定してもよく変化させてもよい。例えば、遊技球が所定領域に入賞または通過することや、大当たりしたときの特別図柄が特定図柄であること等のような条件がある。

【００７１】

【発明の効果】本発明によれば、可動体の動きに合わせて画像が変化するので、画像表示部を見る遊技者を飽きさせない。

【図面の簡単な説明】

【図１】パチンコ機の外観を示す正面図である。

【図２】複合装置の外観を示す正面図である。

【図３】ハンマーを動かすための構成例を示す図である。

【図４】メイン制御基板と表示制御基板の概略構成を示すブロック図である。

【図５】第１種始動口処理を示すフローチャートである。

【図６】図柄変動処理を示すフローチャートである。

【図７】変動表示処理を示すフローチャートである。

【図８】リーチ処理を示すフローチャートである。

【図９】連動変動処理を示すフローチャートである。

【図１０】画像表示処理を示すフローチャートである。

【図１１】特別図柄表示器に表示された画像の一例を示す図である。

【図１２】特別図柄表示器に表示された画像の一例を示す図である。

【図１３】複合装置の外観を示す正面図である。

【図１４】リーチ処理を示すフローチャートである。

【図１５】画像と可動体との連動例を示す図である。

【図１６】画像と可動体との連動例を示す図である。

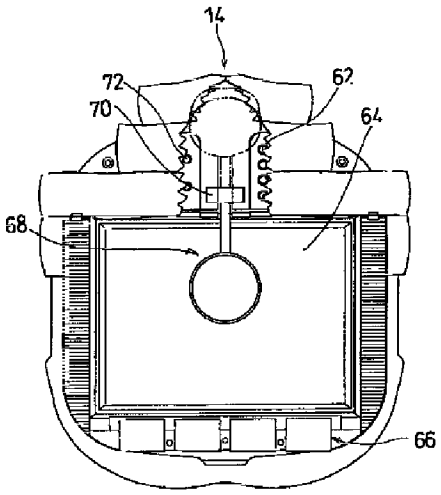
【図１７】画像と可動体との連動例を示す図である。

【図１８】画像と可動体との連動例を示す図である。

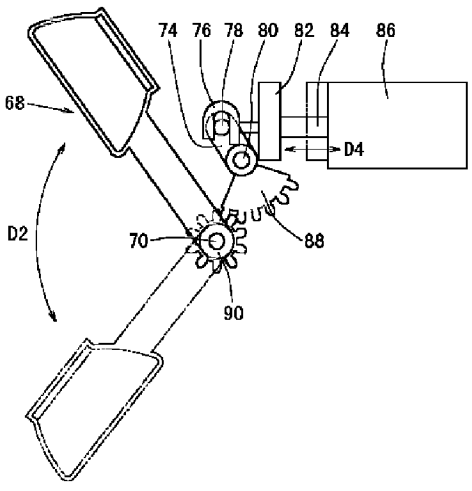
【符号の説明】

１０　パチンコ機（遊技機）
１２　遊技盤面
１４　複合装置
２０　第１種始動口
２４，４６　ゲート
２２，４８　ゲートセンサ
５０，５４　始動口センサ
５６　下部始動口
６４　特別図柄表示器（画像表示部）
６８　ハンマー（可動体）
７２　普通図柄表示器
８６　ソレノイド（駆動体）
９２　複合装置
９４　キャラクタ（可動体）
９７　モータ（駆動体）
９９　パター（可動体）
１００　メイン制御基板（動作制御部）
２００　表示制御基板（画像制御部）

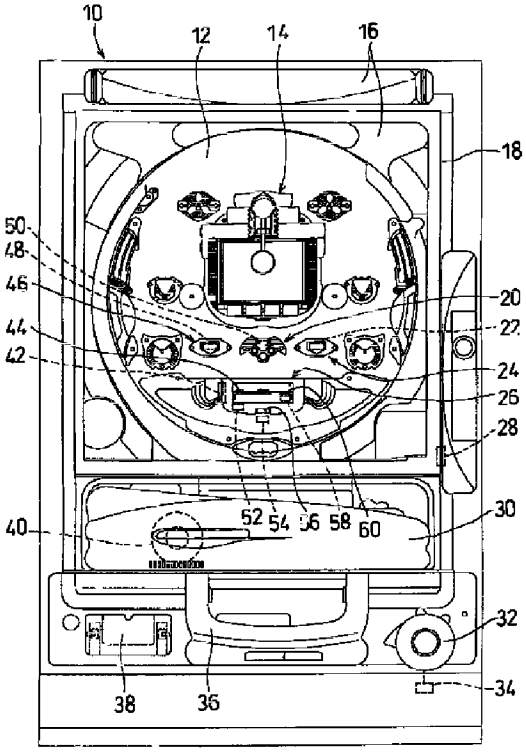
【図２】



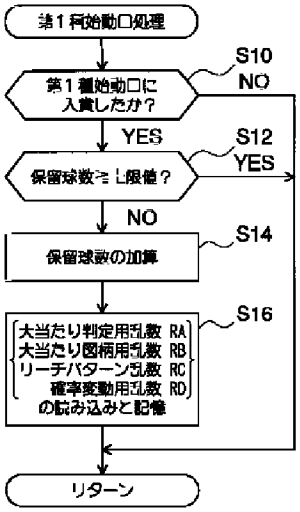
【図３】



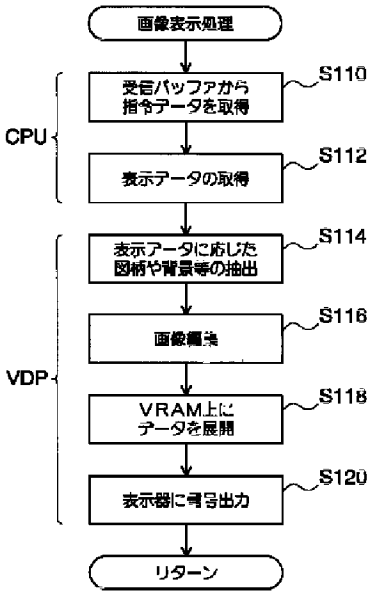
【図1】


10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60

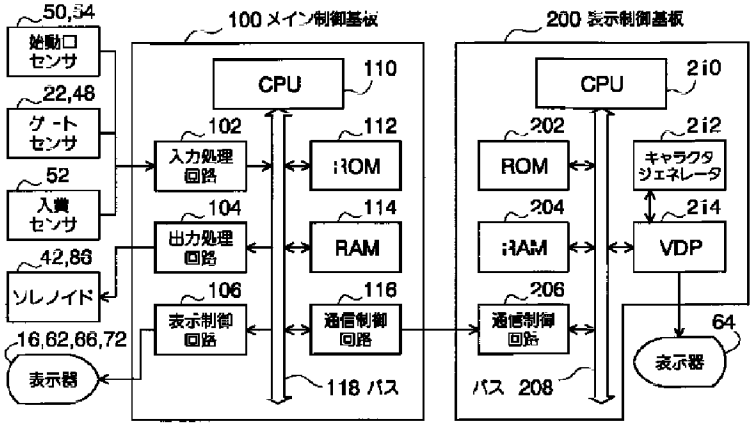
【図5】


第1種始動口処理
第1種始動口に入賞したか？
S10
NO
YES
保留球数＜上限値？
S12
YES
NO
保留球数の加算
S14
大当たり判定用乱数 RA
大当たり図柄用乱数 RB
リーチパターン乱数 RC
確率変動用乱数 RD
の読み込みと記憶
S16
リターン

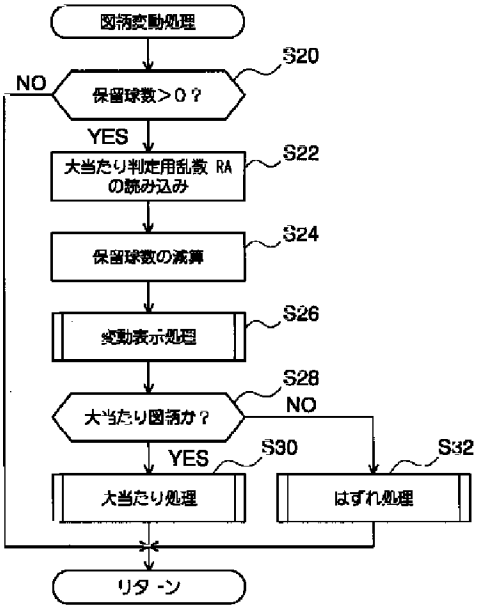
【図10】


画像表示処理
CPU
受信バッファから指令データを取得
S110
表示データの取得
S112
VDP
表示データに応じた図柄や背景等の抽出
S114
画像編集
S116
VRAM上にデータを展開
S118
表示器に信号出力
S120
リターン

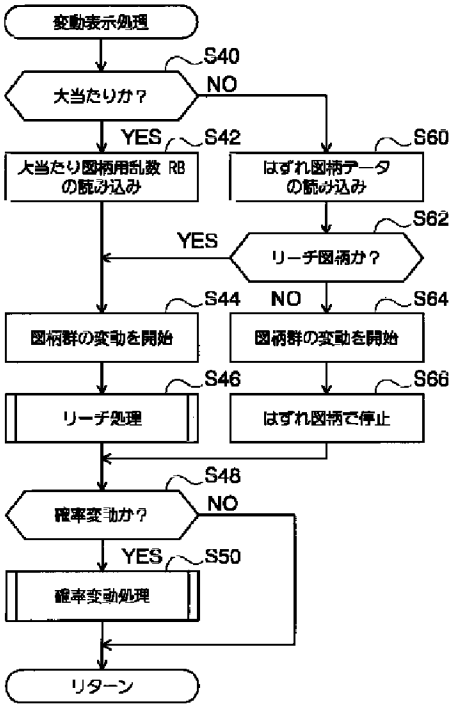
【図4】


50,54
始動口センサ
22,48
ゲートセンサ
52
入賞センサ
42,66
ソレノイド
16,62,66,72
表示器
100 メイン制御基板
CPU
110
102
入力処理回路
112
ROM
104
出力処理回路
114
RAM
106
表示制御回路
116
通信制御回路
118 バス
200 表示制御基板
CPU
210
202
ROM
212
キャラクタジェネレータ
204
RAM
214
VDP
206
通信制御回路
64
表示器
バス 208

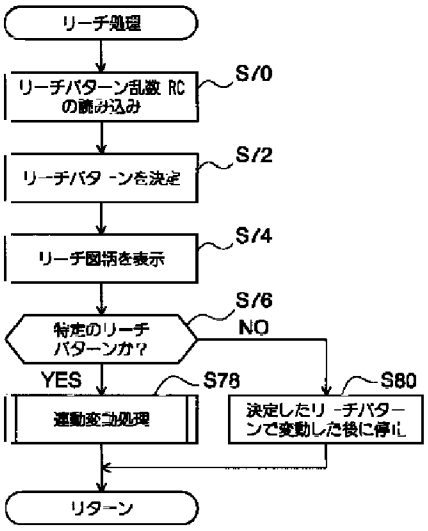
【図6】


図柄変動処理
S20
NO
保留球数＞0？
YES
S22
大当たり判定用乱数 RA の読み込み
S24
保留球数の減算
S26
変動表示処理
S28
大当たり図柄か？
NO
YES
S30
S32
大当たり処理
はずれ処理
リタ -ン

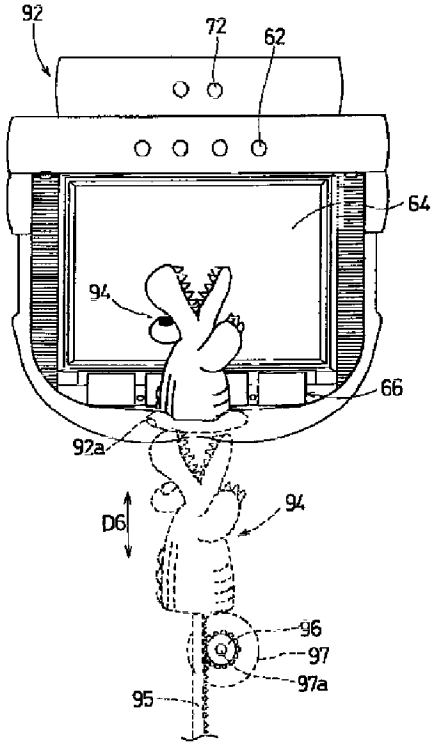
【図7】


変動表示処理
S40
大当たりか？
NO
YES
S42
S60
大当たり図柄用乱数 RB の読み込み
はずれ図柄データ の読み込み
S62
YES
リーチ図柄か？
S44
NO
S64
図柄群の変動を開始
図柄群の変動を開始
S46
S66
リーチ処理
はずれ図柄で停止
S48
確率変動か？
NO
YES
S50
確率変動処理
リターン

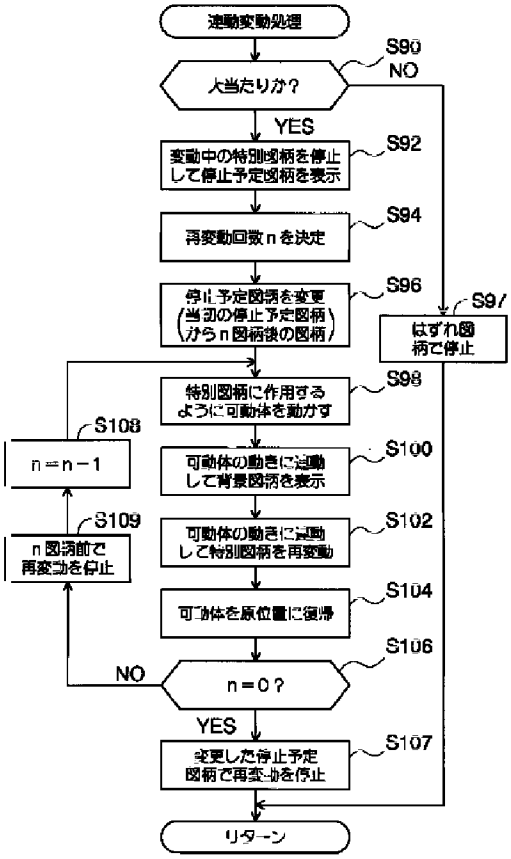
【図8】


リーチ処理
リーチパターン乱数 RC の読み込み
S/0
リーチパタ -ンを決定
S/2
リーチ図柄を表示
S/4
特定のリーチ パターンか？
S/6
NO
YES
S78
S80
連動変動処理
決定したリ -チパター ンで変動した後に停止
リターン

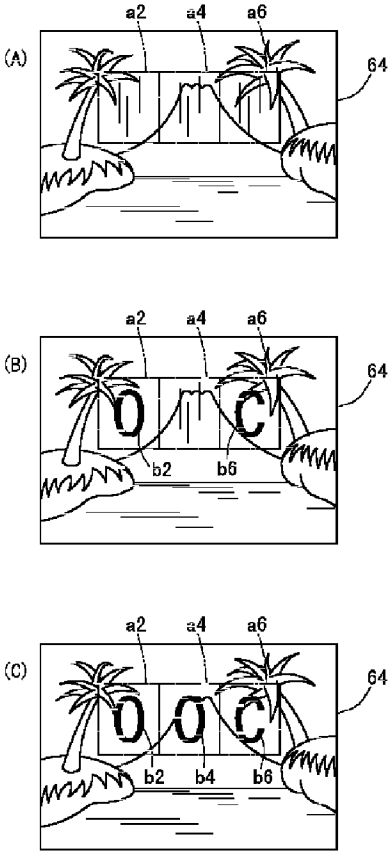
【図13】


92
72
62
64
94
66
92a
D6
94
96
97
97a
95

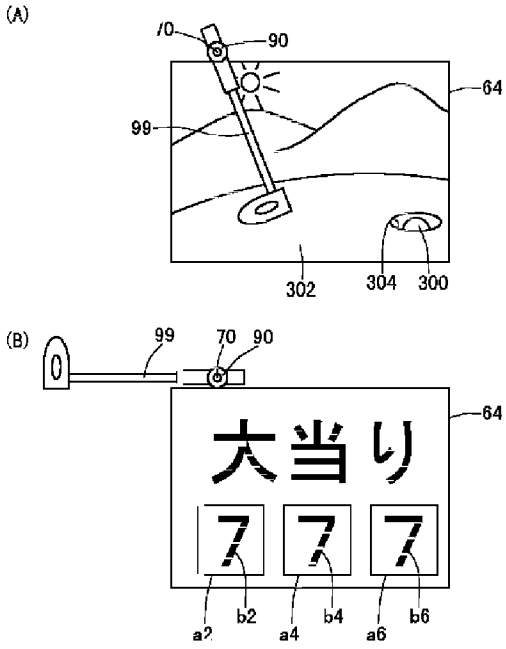
【図９】


連動変動処理
S90
大当たりか？
NO
YES
S92
変動中の特別図柄を停止して停止予定図柄を表示
S94
再変動回数ｎを決定
S96
停止予定図柄を変更（当初の停止予定図柄からｎ図柄後の図柄）
S97
はずれ図柄で停止
S98
特別図柄に作用するように可動体を動かす
S100
可動体の動きに連動して背景図柄を表示
S102
可動体の動きに連動して特別図柄を再変動
S104
可動体を原位置に復帰
S106
ｎ＝０？
NO
YES
S107
変更した停止予定図柄で再変動を停止
S108
ｎ＝ｎ－１
S109
ｎ図消前で再変動を停止
リターン

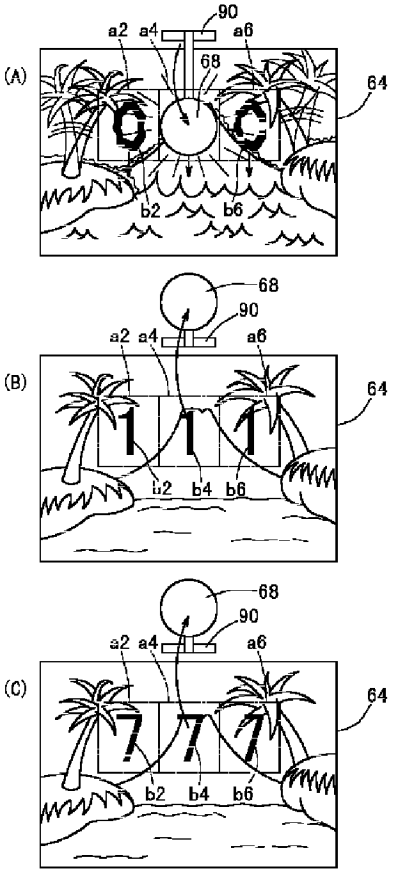
【図１１】


(A)
a2
a4
a6
64
(B)
a2
a4
a6
64
b2
b6
(C)
a2
a4
a6
64
b2
b4
b6

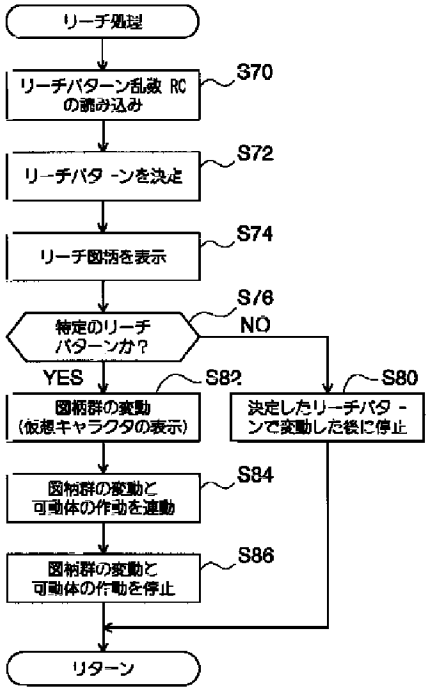
【図１８】


(A)
70
90
64
99
302
304
300
(B)
99
70
90
64
大当り
7
7
7
a2
b2
a4
b4
a6
b6

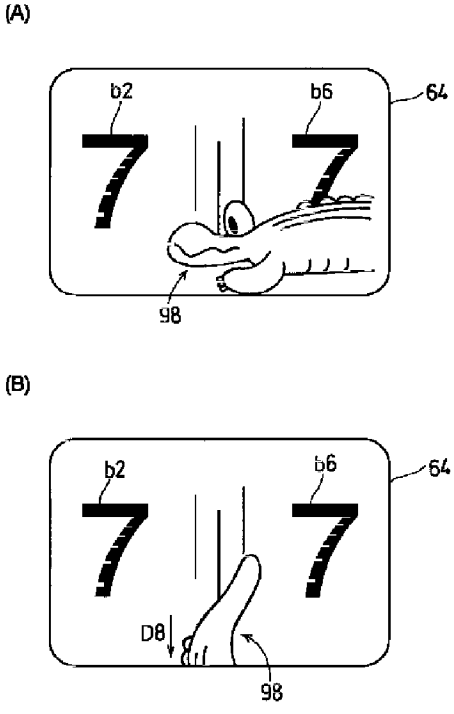
【図12】


(A)
90
a2
a4
a6
68
64
b2
b6
(B)
68
90
a2
a4
a6
64
b2
b4
b6
(C)
68
90
a2
a4
a6
64
b2
b4
b6

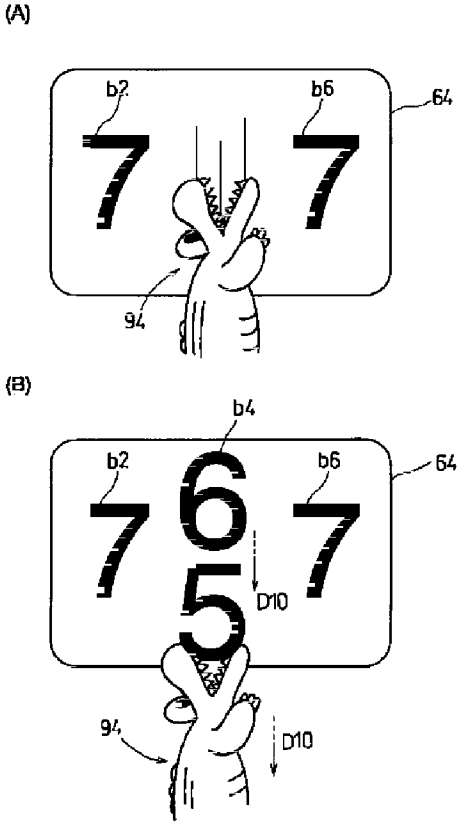
【図14】


リーチ処理
リーチパターン乱数 RC の読み込み
S70
リーチパタ ーンを決定
S72
リーチ図柄を表示
S74
特定のリーチ パターンか?
S76
NO
YES
S82
S80
図柄群の変動 (仮想キャラクタの表示)
決定したリーチパタ ーンで変動した後に停止
図柄群の変動と 可動体の作動を連動
S84
図柄群の変動と 可動体の作動を停止
S86
リターン

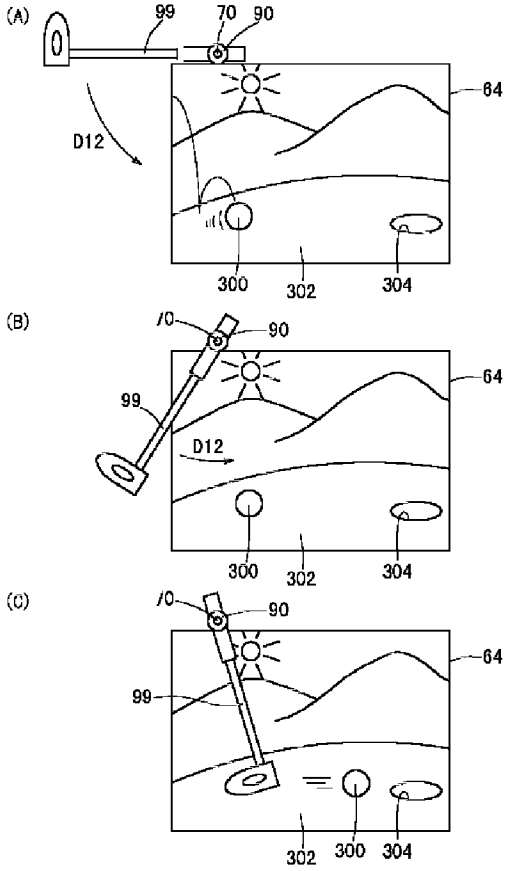
【図15】


(A)
b2
b6
64
98
(B)
b2
b6
64
D8
98

【図16】



【図17】



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Ｆターム(参考)　2C088 AA35 AA36 AA42 EB45 EB68